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CONTENTS.

Original Communications.

Treatment of Summer Diarrhea in Infants. By A. Jacobi, M.D., LL.D. 505
Treatment of Summer Diarrhea in Infants. By J. P. Crozer Griffith, M.D. 510
Treatment of Summer Diarrhea in Infants. By L. Emmett Holt, M.D. 512
Treatment of Summer Diarrhea in Infants. By Louis Fischer, M.D. 514
Treatment of Summer Diarrhea in Infants. By Edwin E. Graham, M.D. 517

Leading Articles.

A Symposium on the Summer Diarrhea of Infancy 522
The Employment of Quinine in Malaria 522
The Treatment of Advanced Tuberculosis 523
A Note in Regard to the Treatment of Obesity 524
The Necessity of Using Caution in Prescribing Climate as a Remedial Agent 524
The Treatment of Pulsating Exophthalmus by Ligation of the Carotid Arteries 525
The Diagnostic Value of Renal Permeability to Methyl Blue in Surgical Affections of the Kidney 526

Reports on Therapeutic Progress.

The Operative Treatment of Well Advanced Carcinoma of the Uterus. 521
Resection of the Greater Part of the Stomach for Cancer 521
Disinfection of the Mouth 527
On the Prevention of Valvular Disease of the Heart 529
On the Value of Milk Whey in Infant Feeding 530
Fevers in Children; Their Significance, General Diagnostic Value, and Antipyretic Treatment 531
Treatment of Chorea by Massive Doses of Arsenic 533
Treatment of Eczema in Infants and Children 533
The Value of Strychnine in Pregnant Women 535
Is Petroleum Emulsion of Any Nutritive Value? 535
Prolonged Chloral Sleep in the Treatment of Chorea 536
Nephritis Complicating Acute or Subacute Gastroenteritis of Infants and Children: Its Treatment 537
The Treatment of Excessive Sweating 538
Diabetes Mellitus 539
Sulphonal Poisoning 540
Glonoinism 544
A Second Case in which Recurrent Mammary Cancer Disappeared After Treatment by Oophorectomy and Thyroid Extract 545
Pregnancy and the Thyroid Gland 546
Justus's Test for the Diagnosis of Syphilis 547
Pneumatic Massage in the Treatment of Deafness and Tinnitus 548
Percussion of the Cranium 548
A Method for the Reduction of Dislocation of the Hip 549
Wounds of the Peritoneal Portion of the Rectum 549
The Treatment of Favus 550
Herpes as a Forerunner of Chancre 550
The Treatment of Prostatorrhea by Prostatic Substance 550
The Operative Treatment of Varicose Veins 550
Exploratory Operations upon the Stomach for Obscure and Obstinate Gastric Symptoms 550
Contraindications to Paracentesis in Serofibrinous Tuberculous Pleurisy 551
The Present Position of the Pessary in Gynecological Practice 551
Senile Endometritis 553
Toxic Influence of Chloroform 554
The Treatment of Tuberculosis of the Testicle 554
Cæsarian Section by Means of a Transverse Incision of the Fundus. 555
Old Dislocations of the Shoulder 555
Vaccination for Hydrophobia at Lille 555
The Treatment of Hemorrhoids 555
Rectal Injections of Saline Solutions in the Treatment of Hemorrhage, Shock, and Infections 556
The Prevention of Postoperative Thrombosis in Veins of the Lower Extremity 556
Subconjunctival Injections in Corneal and Iritic Inflammations 557
The Open Method of Administering Nitrous Oxide 557
A New Method of Reduction in Separation of the Lower Epiphysis of the Femur 558
Deaths After Celiotomy 559
Four Cases of Intussusception 560
The Conditions of Successful Operation in Epilepsy 561
On the Use of Antistreptococcic Serum in Infections by the Streptococcus 562
Clinical Notes upon the Contour and Consistence of a Thousand Prostate Glands 563
Gangrene Following the Local Application of Carbolic Solutions 564
Surgical Treatment for Cerebrospinal Meningitis 565
The Radical Treatment of Chronic Suppurative Otitis Media 565
A Few Remarks on the Diagnosis and Treatment of Rupture of the Bladder 566
The Use of Egg Membrane in Ophthalmic Surgery 568

Reviews 569

Correspondence.

London Letter 571
Paris Letter 574
Quinine in Malarial Hematuria 576
Snake-bite as a Cure for Pulmonary Phthisis 576

Original Communications.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

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To avoid errors in hygiene and diet is the best preventive. The debilitating influence of persistent summer heat should be counterbalanced by improving the vitality and powers of resistance in the young. It is true no newly-born baby should be bathed in cold water, but the gradual diminution of the temperature of the water used for ablutions may go on until after a few months the healthy infant bears washing and friction with cold water perfectly well. During the hot weather it should be so treated several times a day. The clothing should be thin; those who perspire freely should have no linen next to their bodies, the claims of modern preparations of that material notwithstanding; cotton or thin flannel, both of which gradually absorb and give up perspiration, is preferable. In very warm weather a single loose gown is sufficient. No feather beds or pillows should be permitted, no heavy curtains. Surely the baby is better off in a hammock, the head being supported by a

hair- or air-pillow. Babies in bed should have their positions changed from time to time. Their mouths should be anxiously watched, a teaspoonful or more of water being given after every meal; the washing should be done without clumsy rubbing; and plenty of drinking-water, the quantity depending on seasons and the temperature of the atmosphere, should be allowed in the intervals between feedings.

This is not the place to prove for the hundredth time what I have said a thousand times before. I shall only repeat that "cow's milk is not woman's milk" and not identical with it. Sterilization or Pasteurization does not change its character; they merely obviate such dangers as result from the presence of most pathogenic germs and from premature acidulation. The substitution of sterilized cow's milk for woman's milk as the exclusive infant food is a mistake. Digestive disorders such as constipation or diarrhea, and constitutional derangements such as rachitis and scurvy, are often caused by its persistent and exclusive use.

The percentage of milk-sugar in woman's milk is larger than it is in cow's milk; indeed, it is so large that five per cent of the normal feces of a baby consists of unaltered sugar, though its change into lactic acid is very rapid indeed. Under the influence of this rapid conversion cow's milk turns sour speedily. Not infrequently it is acid from the first; it has been found to be so in the udder; in most cases it is neutral. As soon as milk is swallowed, though it was alkaline, the milk-sugar is converted into some form of lactic acid by the action of a bacillus, of which there are three varieties, according to Y. Kozai (*Zeit. f. Hyg. u. Infect.*, vol. xxxi). This process, after the rennet of the stomach has exerted its coagulating effect, together with the gradual transmutation of fat into acid, is the final cause of curdling. When there is much — or too much — milk-sugar, though some of it be not changed at all, there is an opportunity for too much lactic acid. That is mainly so in the puerperal and in the anemic woman. Both of them secrete milk with a superabundance of milk-sugar, and their babies may suffer for that reason only from obstinate diarrhea. Cane-sugar is not so easily transformed; indeed, it is utilized for the purpose of counteracting the rapid conversion of milk-sugar (as also for the preservation of articles of food in general). Trade is not so slow to avail itself of the results of organic chemistry as the medical profession. Condensed milk remains unchanged for some time on account of the plentiful addition of cane-sugar, in spite of the original presence of milk-sugar in it. Therefore it is not at all indifferent whether milk-sugar or cane-sugar be added to the food of infants and children. I have always insisted upon the selection of the latter for that purpose. Even Biedert, than whom there is nobody more inclined to be guided in his reasoning and formulæ by the conscientious imitation of chemical accuracy, employs cane-sugar in his cream mixture. There is enough milk-sugar in every infant food, containing as it does cow's milk and farinacea, to supply the demand of lactic acid required for digestion and for antiseptic effects in the lower part of the bowels. Moreover, according to Pavy, cane-sugar, part of which is absorbed, is in part inverted into grape-sugar. That is why even the amount of cane-sugar should be rather restricted in quantity, particularly in cases of sickness. In the sick the absorption of sugar is slower than in the healthy. Besides, during most diseases, particularly those of the alimentary canal, there is an unusual amount of ferment in the mouth and stomach. That is why a moderate quantity of sugar only should be given in such conditions, never in a concentrated form, and least of all milk-sugar.*

As far as other points connected with normal feeding are concerned, that being the best preventive of summer diarrhea, I beg to refer my readers to some one of my former writings (the latest of which are Therapeutics of Infancy and Childhood, 2d ed., 1898, and "Cholera Infantum," in Twentieth Century Practice of Medicine, xiv) and to insist again upon the danger involved in crowding artificially fed infants with fat (cream) and the advisability of adding cereal decoctions to the cow's milk, which must necessarily be the main constituent of infant foods. The presence of a diastatic element in the secretions of the salivary glands of the newly-born and in those of the pancreas of the very young infant, which was known perfectly well these twenty-five years, and also utilized in my practice and teaching, is no longer

*On the other hand, the effect of sugar as a means of counteracting some forms of chronic constipation in infants, due to a relative absence of sugar and superabundance of casein, becomes plain. It is a practice that I have recommended these forty years. Some cane-sugar, a teaspoonful or less dissolved in tepid water (or oatmeal water), should be given before each nursing; it will often prove the only remedy required for the regulation of the constipated bowels.

entirely unrecognized and is becoming gradually appreciated, even by the profession of medicine.* Many new observations and experiments add to our former knowledge on the subject. Only lately A. E. Austin (*Boston Medical and Surgical Journal*, No. 26, 1899) found that ptyalin remains active through one or two hours and is not even interfered with by the secretion of hydrochloric acid, which is secreted after a non-albuminous as well as after an albuminous test meal — thus confirming Th. Rosenheim (*Centralbl. f. d. Med. Wissensch.*, No. 12, 1887).

Amongst the causes of intestinal diseases not only the quality but also the quantity of food should be considered. More infants get sick from overfeeding than from underfeeding. The demand for elimination, which has to be controlled mainly by the kidneys and by the digestive glands, is excessive; these organs are overworked, and still they cannot dispose of the refuse in cases of overfeeding. Fermentation and putrefaction take the place of digestion, and gastric and intestinal, beside constitutional, disorders are the results.

Summer diarrhea is no pathological entity. It comprises all forms of diarrheal discharges, from an acute intestinal catarrh (which may or may not have a tendency to become chronic) to follicular enteritis, and streptococcic and bacillary gastroenteritis (Booker, Escherich). According to the mildness or severity of the case, the main symptoms are excessive discharge of a mucous, a serous, or a fetid character; desiccation of the tissues and general anemia, leading to insufficient nutrition and thromboses; and absorption of toxins generated by cocci or bacilli.

When any of the above named forms of enteritis is complicated with any kind of gastric disorder which is apt to show itself in nausea and vomiting, the stomach should be emptied.

The irrigation of the stomach meets with almost no difficulties in the young; an elastic catheter (No. 20 or 30 French) is sufficient. In very rare instances the nostril (mostly the right) may be used. Salt water (7:1000) may be poured through the tube from a funnel connected with it, or from a fountain syringe, which is slightly raised above the level of the pharynx, and lowered when the fluid and stomach contents are to flow out. This salt water may be mixed with a disinfectant, either thymol 1:3000–4000, or resorcin 1:1000, or in cases of known hyperacidity with bicarbonate of sodium 1:200–500. The temperature of the irrigation should be that of the body when this is normal, cooler when there is a great elevation, or warmer when there is a reduction of the body temperature. Alcohol should not be added to the injection, because its mixture with water is liable to be rapidly absorbed by the stomach. On the other hand, when water is injected without salt, it causes osmosis of the body fluids into the stomach, sometimes to such an extent as to visibly increase the amount returning from the stomach. The irrigations should amount to 100 and more cubic centimeters in the nursling, 200 or 300 in the child, and should be repeated until the liquid returns clear. The tube should always be withdrawn quickly, so that irritation of the fauces may be avoided.

The intestines should be emptied speedily by purgatives and by enemata. The former affect the whole length of the tract, the latter the lower part, as far as it can be reached by irrigations.

Irrigation of the intestinal tract is mostly performed while the patient is on his back, or side, with gently raised hips. The nozzle of the irrigator (fountain syringe) or of the tube connected with a funnel is introduced a few centimeters beyond the internal sphincter. Long tubes are generally useless; even in the cases of adults, with normal sigmoid flexures, the reports of the introduction of a tube to a distance of from twenty-five to fifty centimeters should be accepted with caution, for stiff tubes are able to raise the intestine and may be felt in the hepatic region, while a flexible tube is liable to turn upon itself. That is more so in infants and children, in whom the sigmoid flexure is multiple and can rarely be passed by an instrument. In some cases it is advisable to raise the lower half of the body considerably, according to the method I have followed these thirty years, to reduce intussusception, and to support the abdomen by a soft pillow, while the face is turned to one side to facilitate respiration. While the anus is firmly closed the liquid is allowed to flow in from a slight elevation, from ten to fifty centimeters (four to twenty inches). A greater elevation raises the pressure to an unbearable point, and the gut is no iron pipe. A slight elevation will

*It is surprising how long it takes us to divest ourselves of our ignorance or of a prejudice; may be that the agility of the wholesale food manufacturers who availed themselves all over the world of the new facts developed by Zweifel, Korowin, Schiffer, etc., discouraged the profession to accept the principle on which part of their merchandises were compounded.

improve the tolerance of the intestinal tract, which may thus be filled to the ileocæcal valve and beyond; in very exceptional cases even to the stomach. It is only an abnormal intestine, dilated in places, or bound down by previous adhesions, or abnormally sensitive, that resents the flow of the fluid by spastic contractions, or by pain or vomiting. The indication of a greater or smaller elevation is guided, in special cases, by the object to be attained. Part of the liquid—particularly when slightly saline—is absorbed, and sometimes very quickly. That is why when that is not desirable (mostly with the first irrigation when the cleaning of the gut is the only indication) the irrigator should be raised high. Then the intestine fills up more rapidly, and the return of the fluid, with the contents of the bowels, is more readily secured. From one pint (500 cubic centimeters) to two quarts of water should be used in the first irrigations. When it is desirable to secure retention and absorption of the fluid, in collapse, or when brain symptoms make their appearance, the later irrigations should be smaller. Tepid or cool water should be used when there is hyperthermy, water of the temperature of the body when this is normal, hot water when there is hypothermy with or without collapse. Medicinal agents may be added to the water; for instance, thymol or permanganate of potassium in 1:3000–4000 solutions, or subnitrate or subgallate of bismuth, of which one or two teaspoonfuls may be stirred up with a pint or a quart of water.

The addition of gum acacia to the injection, or the use of glutinous decoctions such as flaxseed instead of water is preferred by many when there is tenesmus. Starch injections (the starch to be boiled before being mixed) have the advantage of adding to the nutrition of the body by the facility with which the colon changes amylum into dextrin, which will be absorbed. Part of the injected water will always be absorbed, fill the blood-vessels, and may prevent intracranial and other thromboses. Indeed, in many bad cases in which the cerebral symptoms of the "hydrencephaloid" condition have made their appearance, or are imminent, frequent injections into the rectum of a few ounces of warm fluid contribute considerably to the restoration of circulation.

Of medicines which are to empty the bowels, castor oil, in doses of from one-half to two teaspoonfuls, is in common use, and acts well. It should not be combined with an opiate, which finds its indication after the purgative has acted. Calomel in small doses, one-tenth to one-fourth grain every hour, until the discharges show its presence, or a single larger dose of one to three grains, deserves the credit it enjoys.

Not only vomiting, but uncomplicated diarrhea, indicates the withholding of food or drink for some hours. The introduction of water into the rectum furnishes enough fluid during this dangerous condition. The thirst will rather decrease than increase during this period of apparent starvation. Indeed, owing to the gastric excitation and the intestinal hyperperistalsis, there is no absorption of ingesta. After a reasonable time small pieces of ice, which in the beginning would increase peristalsis, or a teaspoonful of boiled water (cooled) may be given, or the same quantity of a thoroughly cooked and strained barley-, or toast-, or rice-water. His favorable experience with farinaceous waters in the diseases of the infant intestine appears to have reconciled even Heubner to their administration.

At this stage of the ailment no milk is permitted, no breast milk, no sterilized or Pasteurized milk. "Under ordinary circumstances milk feeds babies, but in these extraordinary circumstances it feeds bacteria." It may take a few days or a week before the discharges cease to be thin and malodorous. After a few days the white of a raw egg, thoroughly beaten and mixed with barley- or rice-water, may take the place of milk. Meanwhile the thirst may be quenched by (now and then) a teaspoonful of a mild tea, or a few drops of good whiskey in a small quantity of barley-water may be given at safe intervals. A mixture that I have often recommended in writings and lectures, and which has rendered good service when the period of absolute starvation had passed, is as follows: One hundred and fifty cubic centimeters (five ounces) of barley-water, the white of one egg, one or two teaspoonfuls of whiskey, enough salt and cane-sugar to improve the taste. Of this a teaspoonful is administered every five or ten minutes. This is ample for sustenance, particularly when methodical rectal injections are employed. After a while sterilized or Pasteurized or boiled milk may be added, but not more than ten per cent of the mixture. As ever so many times previously these nearly thirty years, I can still recommend the mixture of hydrochloric acid with milk, according to I. Rudisch's formula. Two cubic centimeters (half a teaspoonful) of *dilute* hydrochloric acid is mixed with a pint of water, and this mixture with a

quart of milk; all of this is brought to a boiling point. If ever there be coagulation, it merely proves that the acid was in excess, by mistake. This is a mixture which is readily taken and digested by invalids and dyspeptics.

In most cases the contents of the stomach and the bowels are hyperacid and require neutralization. Sodium and magnesium salts should not be employed because of their purgative effect. The carbonate or phosphate of calcium is preferable because it has no such effect, but the additional advantage of forming with the fat acids insoluble salts that act as protectors to the sore surfaces. From one-half to two grains may be given every hour, or two or three hours. Bismuth subnitrate or subgallate, with or without opium, and the alkali, in doses of one-half to two grains, may be given every two hours; it should soon cause the stools to exhibit a slate color. If any of these remedies be given in a liquid form they should not be mixed for the purpose of sweetening with syrups, but with glycerin. These small doses I find sufficient. Most infants may tolerate the large doses now and then reported in the journals, but some do not. Lead, gallic and tannic acid, alum, etc., are badly tolerated in acute cases, and are rarely required in chronic ones; these latter will now and then do well with fluid extract of coto (one-half to one minim every few hours), and many with nitrate of silver one-sixtieth to one-thirtieth grain (0.001–0.002) every two hours, in a teaspoonful of distilled water. It is mainly in the catarrh of the lower bowels that tannalbin, tannigen, or tanocol, in doses of from three to four grains (0.2–0.25) four or five times a day, acts well.

General collapse, or thorough exhaustion, with ashy pallor and depressed fontanel, demands stimulation, with hot rectal injections of a few ounces of water with from one to five per cent of whiskey (which should be of the best, because the fusel oil of poor brands is paralyzing rather than stimulating); subcutaneous injections of the saturated solution (1:2) of the salicylate (or the benzoate) of sodio-caffein, from five to ten drops once or repeatedly, or of $\frac{1}{100}$ or $\frac{1}{50}$ grain of sulphate of strychnine, or of a grain or more of camphor dissolved in a few drops of sweet almond oil, or of whiskey, or of a syringeful of tincture of musk. In urgent cases the subcutaneous infusion (7:1000) of sterilized salt water in quantities of from 300 to 500 grammes (ten to sixteen ounces), once or more times, may prove life-saving.

Great abdominal pain may be relieved by warm fomentations (water or poultices). They should be covered with oil silk, or a rubber cloth, and flannel, and must not moisten the clothing or bedding. When the pain is accompanied with fever, cool or cold applications should be made with the same caution, and changed when they become hot. In collapse the fomentations may be rather hot.

Opium relieves hyperesthesia, hypersecretion, and hyperperistalsis; it acts more slowly and more locally than morphine, and the latter should not be given. Opium finds no place in the incipient stages of dyspeptic and stercoraceous conditions with diarrhea, but when the bowels are emptied it deserves credit for the blessings it conveys. To condemn its use, because in a case of idiosyncrasy or of mistake on the part of a practitioner or an apothecary it proved dangerous (Which drug or food never did?) is fanaticism. A baby of six months may take safely of the camphorated tincture of opium, every two, three, or four hours, from four to ten drops ($\frac{1}{90}$ to $\frac{1}{36}$ grain of opium).

Putrefaction inside the gut does not reach the degree of that outside of the body, mainly because of the presence of organic acids and the relative exclusion of atmospheric air; but still it is going on all the time. It is active in the presence of much fluid, and is kept up by the presence of nitrogenous food. Even milk is no exception to the rule; generally, if at all, it is best when fermented, and mainly when deprived of its casein. Carbon hydrates interfere with putrefaction on account of their producing organic acids, and should be the principal food permitted for some time.

For their disinfectant effect calomel, bismuth, alcohol, creosote, salicylate of sodium, salol, naphthalin, betanaphthol, bichloride of mercury, and others have been recommended. The answer to the question whether disinfection of the alimentary canal may be accomplished by internal medication should not be left to bacteriologists, but to clinical observers, who are nearly unanimous as to the good effects that can be obtained by it. Resorcin in doses of one-fourth grain or a little more every two hours, usually with some other indicated drug, has been of great service to me. Its great solubility does not militate against its usefulness in the intestine, for though the stomach dissolves it, it does not absorb it any more than, with few exceptions, it absorbs anything. Salol, which

is insoluble until it reaches the alkaline contents of the intestine, and for that reason finds its natural indication in the demands of the lower part of the small and in the large intestines, may according to the age of the patient be given in doses of from one-half to two grains every three or four hours. There is hardly any of the above named drugs that has not been tried by every practitioner of large experience. Creosote is employed by many; alcohol in the shape of brandy, whiskey, or wine is safe in a number of cases where, besides antisepsis, stimulation is required; dilute hydrochloric acid improves gastric digestion in two ways, first by acting as an antiseptic, secondly by taking the place of the natural secretion of the stomach, which is liable to be defective in every morbid condition that results in exhaustion, anemia, and insufficient glandular function.

When the urgent symptoms of the disease have disappeared there is utter exhaustion, anemia, want of appetite, absence of the normal secretions and of the muscular powers of the digestive organs. To administer iron under such circumstances is not indicated; it is not dissolved and not absorbed; indeed, there is iron enough in whatever food is indicated and assimilated. There are two remedies which act as stimulants and tonics: strychnine, any of whose salts may be given in doses of one-sixtieth grain or more daily, in divided doses; and orexin, the tannate of which should be taken a few times a day, in doses of from one to three or four grains some time before meals, several times a day. That in the course of the disease, and during convalescence, fresh air — night air being superior to no air—should be furnished, and sojourn in the country be ordered, is self-understood. Indeed, many a case will die in the city in spite of whatever is done for it, and many a one which looked desperate will be quickly relieved and finally cured by cool mountain or sea air.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By J. P. Crozer Griffith, M.D.,
Clinical Professor of the Diseases of Children in the University of Pennsylvania.

The questions often asked one, Do you use opium in treating diarrhea in infants? Do you use castor oil? Do you give antiseptics? and so on, can be answered in two words only, "That depends." Although there are a legion of remedies recommended for this disease, a long experience with its various forms has, I think, taught me that it is not so much the possession of a large variety of therapeutic measures which is needed, as it is the knowledge of how to choose any of them for the individual case. The physician who shows the best judgment in his selection may naturally be expected to obtain the best results. Not only is the nature of the diarrheal affection to be considered, but the stage of the disease also, and especially the condition of the patient. Finally, in dispensary practice there is a still more puzzling factor, viz., what therapeutic procedures one is able to have carried out.

The measures which I employ are few in number, but selected after much experimenting. In the *early* stages of simple acute diarrhea—call it by whatever name we please —the stopping of the supply of fuel to the fire is generally all that is needed. It is in such cases that free purgation is useful—by calomel, castor oil, magnesia, or other drug. As there is very liable to be some vomiting attending, my usual preference is for calomel, combined with bicarbonate of soda, in divided doses, for castor oil and other drugs are very apt to be rejected by the stomach. Combined with this treatment must be entire abstinence from the usual food. Withdrawal of *all* food is theoretically to be desired; but inasmuch as this, though good for the baby, is hard upon the sympathies of the mother, I generally order barley-water or gelatin-water in small amounts. Egg-water is useful where the condition of the child demands stronger nourishment.

By the second day of treatment we may generally conclude that the toxic substances have been removed, and that we have to deal with the remaining catarrhal condition of the intestine. As a rule purgatives are no longer needed, but the same plan of feeding should be followed. Should the diarrhea be still unabated by the second or third day of treatment, methods to check it may be required. After trial of many I still find nothing so generally useful as bismuth, giving four to five grains every two or three hours even to very young infants. Chalk mixture may be combined with this, with an aromatic water if there is much colicky pain.

In cases in which the diarrhea still tends to persist, other drugs may be used. Kino and krameria are useful remedies formerly much employed, but now largely replaced by newer astringents, such as tannalbumen and tannigen. I have found tannigen often disap-

pointing, but sometimes of service in cases which tended to prove obstinate.

In other rather persistent cases the administration of sulphuric acid is often of value. The antiseptic drugs have been found generally disappointing in my experience. Betanaphthol bismuth has sometimes seemed serviceable. Salicylic acid, resorcin, naphthalin, and others have all been tried. In combination with other remedies good often followed; used alone this was seldom the case. The inference was obvious. In some obstinate cases the continued administration of a mercurial in small doses is sometimes of service. In others, although only exceptionally, I have found the giving of castor oil daily during a few days apparently do good. Both of these are plans of treatment once very popular.

The question of the use of opium has been much discussed. After careful comparative tests in series of cases as similar as possible, I am convinced that this drug is often indispensable after the early days of the disease are over. Frequently its addition appeared to be the only means which would control the catarrhal state. It is sometimes necessary to give opium even early in the disease. There is the danger from this that the poisonous matters in the intestine may be locked up there and absorbed, and the general condition of the infant made much worse. On the other hand the child is sometimes weakened to such an extent by a profuse discharge from the bowel that the checking of this by any means possible is the first indication. I know of nothing requiring more judgment than the decision whether or not to give opium in certain cases. It is certain that the indiscriminate giving of opiates in the diarrhea of infants is to be deprecated.

The question of the use of lavage of the bowel is one of importance. A single large enema is sometimes very serviceable at the beginning of the treatment. As a rule, however, I find the methods already described preferable, except in those cases where from the beginning, or later, there is a great preponderance of mucus in the stools, although without evidence of an inflammatory condition being present. Here large injections of starch-water or of normal salt solution, given once or twice a day, will often do more good than any drug given by the mouth.

The return to the usual diet must be made with the greatest caution, as it is sometimes difficult to accomplish. No rules whatever for this can be laid down, except that the proteid element of the milk should at first be small in amount. Whey, cream mixtures, beef juice, egg-water, weak peptonized milk mixtures, and the like, all find their appropriate place in cases where the powers of digestion and absorption remain weak for a time. Alcohol and tonics in general are to be used when needed. No rules can be given.

Many of the cases of severe acute summer diarrhea appear to be instances of *heat exhaustion*. It is often a question whether we have to deal so much with an intestinal poisoning by bacteria, as with a profuse leakage from the bowel induced by excessively hot weather. A careful study of this matter during the heated terms of a number of years has convinced me that we err if we treat these cases with our minds centered on the idea of a bacterial cause alone. The coolest of clothing, the use of cool baths several times a day in suitable cases, the entire removal from hot weather, especially in cities, when practicable, or when not, the sending of the children into the parks, or preferably on the water during the daytime, are our best means of treatment. I have often told mothers not to return to the clinic until the weather was cooler, as I could not do as much for the babies as the cool air of the Delaware River could accomplish.

The treatment of enterocolitis is simple in its methods; difficult in the attaining of the desired results. Drugs given by the mouth have comparatively little influence. Bismuth in full doses is probably one of the best. Opiates may be needed to relieve pain and tenesmus, but have no distinctly curative action. On the other hand, local treatment is of the greatest importance. Douching the bowel once or twice a day with starch-water has stood me oftenest in stead. The injection must be given slowly, and the infant made to retain as much as it can hold for some moments—best from a fountain syringe suspended not more than about two feet above the bed. Sometimes astringent enemata of tannic acid one-half to one per cent, or of nitrate of silver one-eighth to one-fourth per cent, act well, but I have often seen them increase the straining. The effect cannot be predicated; it can be determined only by trial. The addition of a small amount of laudanum to the enema is sometimes helpful. I have found enemata of a suspension of bismuth in mucilage of acacia sometimes of service.

Of very great importance in this disease is change of air and change of diet. It happens not infrequently that babies seem to have lost their power to digest milk in any form. In such cases to give it at all is harmful, until recovery is well under way.

This form of diarrhea often lasts for weeks, and the general health suffers greatly, necessitating careful tonic and supporting treatment.

Infants developing enterocolitis in hospital wards had better be removed. Not only is their treatment there absolutely discouraging, but the disease is certainly often infectious and will spread to others.

Cases of what I can truly call cholera infantum do not very often come under my observation. The name is very commonly misapplied. It is well to remember that in this disease we are dealing not so much with a poison still in the intestinal canal as with one in the system. We have the symptom of profuse exhausting discharge from the bowel, and this symptom must be combated at once with opium in full doses. The other severe manifestations of this disease are to be treated symptomatically as they arise.

The condition of pseudomeningitis depending on diarrheal diseases is frequently seen. It must be treated according to circumstances. There sometimes arises a curious condition in which there is present apparently a paralytic condition of the vasomotor and, probably, pneumogastric systems, yet with no special simulation of meningitis. In such cases, without any exhausting diarrhea or evidence of intestinal decomposition, the child breathes constantly with great rapidity, exhibits flushing of parts of the body, has a rapid, feeble pulse, and may readily die promptly without one being able to tell just why. Undoubtedly this is a toxemic state. While not neglecting the condition of the bowel whence the trouble comes, our chief efforts must be directed to the nervous condition. Strychnine in full doses, nitroglycerin, digitalis, and atropine will aid us most.

What I have written briefly is not, of course, intended to cover the wide subject of the treatment of the diarrheas of infancy, but only to express the result of personal experience and observation. I must urge in closing what has already been indicated—that any methods detailed can have only a general application. The individual is everything, and the features of each case must be carefully studied to obtain good results.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By L. Emmett Holt, M.D., New York,
Professor of Diseases of Children in the New York Polyclinic.

It must be distinctly kept in mind that cases of summer diarrhea, so called, are not at the outset inflammations of the mucous membrane of the stomach and intestines, although inflammation of a serious character may afterwards develop. The initial condition is in the nature of an acute intoxication, which arises from the materials in the digestive tract. The circumstances which favor such a state of affairs are an arrest of stomach and intestinal digestion and the presence of food remains readily acted upon by the bacteria, which were there before, or which have been introduced with the food (usually milk) which has been taken. The damage done to the epithelial walls and afterwards to the other coats of the intestine, as well as the constitutional symptoms which form the familiar picture of a severe case of summer diarrhea, are both the consequences of changes taking place in the matter contained in the gastrointestinal tract. The inflammations developing in other organs, especially the kidneys, are also a result of the absorption of such toxic materials into the general circulation.

It being therefore the gastrointestinal contents which are the *fons et origo* of the trouble, it follows that the first indications for treatment are to *stop all food, but especially milk*, and to evacuate the stomach and bowels by the most certain, easy, and rapid means at our disposal.

Stomach Washing.—This is useful where vomiting is a prominent symptom, and is of value chiefly in cases seen early. In such it is well to use the water at a little higher temperature than usual—*i.e.*, at 110° F., or even a little above this point. I see no advantage in adding anything to the warm water (which should first have been boiled) except a little bicarbonate of soda, where there is considerable ropy mucus in the matters brought up. The washing of the stomach must be thorough, nearly a quart of water being used, and allowed to flow in and out of the tube until it comes away quite clear. It is often well to leave three or four ounces of water in the stomach.

It is rarely necessary to repeat the stomach washing.

Intestinal Irrigation.—This is of very great value—I am inclined to think of more value

than anything else we can do for these cases, except perhaps to stop food. It is, however, of little avail unless properly carried out. Some reference to details may therefore not be out of place. The catheter used should be of flexible rubber, should have considerable resistance, and should be nearly new, as one much used soon becomes so soft and bends so easily as to make full introduction difficult or impossible. I prefer the infant's rectal irrigating tube (made by Tiemann & Co., New York), which is about twenty inches long, the usual size being that of a No. 18 American catheter, but a little heavier than catheters are generally made, and having an opening at the end as well as an eye on the side near the extremity. This tube does not bend easily upon itself, and when fully introduced reaches almost to the splenic flexure; in that position it is an easy matter to flush out the entire colon.

Instead of the fountain syringe I prefer a glass irrigator, which enables one to see at a glance whether the water is flowing steadily or is obstructed by bending of the tube or any other cause. The amount of force employed is of some importance; an elevation of the irrigator four feet above the patient is quite sufficient, and much more than this may be harmful. I prefer a saline solution (one drachm to the pint) at a temperature of 100° to 104° F. Water at a lower temperature often causes so much contraction of the muscular coats of the colon as to interfere with thorough flushing. However, after using three or four quarts of the warm water, I often introduce at the end, particularly if the patient's temperature is high, one quart at 65° or 70° F. This has a good tonic effect on the mucous membrane and has a favorable influence on the body temperature. It is by no means necessary to have all the water escape through the tube; on the contrary it is in most instances advisable to allow at least a pint to remain, for the system is usually suffering greatly from the lack of fluid resulting from the diarrhea.

If properly done, irrigation empties the colon and does it thoroughly; but this is soon filled again by the descent of materials from the small intestine. Such a descent seems greatly to be hastened by washing the colon. It happens therefore that in a few hours the colon may contain almost as much as when it was first washed out, and the irrigation must be repeated.

No one would think that he had done his duty when he had washed out a septic uterus once in twenty-four hours; and for similar reasons irrigation of the colon must be repeated in severe cases with high temperature and marked nervous symptoms at least once in six hours if we are to expect much from it.

The importance of washing out the colon and keeping it clean cannot be overestimated in relation to the production of serious intestinal lesions in the protracted cases. There appears to be a definite and constant relation between the situation of the intestinal lesions and the movement of the intestinal contents. In the jejunum and upper ileum, where the contents are propelled rapidly onward, serious lesions are never seen. When lesions are present, they are always situated where the intestinal contents are arrested and accumulate, viz., in the lower part of the ileum and the colon; while in the colon itself it is the cæcum, the sigmoid flexure, and the rectum which suffer most.

Cathartics.—While distinctly less valuable than intestinal irrigation, they are of very great utility, particularly in the early stages of the attack. Only by them can we sweep downward the whole contents of the small intestine into the colon, where it can be reached from below. Castor oil, calomel, and the salines are the best. The oil is to be preferred in the subacute cases, where the stomach is very little or not at all upset. The dose must be liberal—a teaspoonful to an infant of six months, and this repeated in three hours. Calomel I usually order in tablet form in quarter-grain doses hourly, until six doses have been given. Of the salines, magnesia is to be preferred. The milk of magnesia is not usually vomited even by an irritable stomach, and may be given in teaspoonful doses hourly for four doses; or the solution of the citrate may be given in teaspoonful or tablespoonful doses every fifteen or twenty minutes until three or four ounces have been given.

In protracted cases there is an advantage in clearing the intestine once in four or five days with an active purgative.

Other Drugs.—The disposition to rely much upon drugs, especially of the class which are used to check intestinal discharges, is fortunately rapidly passing away. Opium, formerly given so large a place, should be restricted to the checking of exaggerated peristalsis after the character of the movements has ceased to be foul, and in fact has often become nearly normal. Small doses usually suffice for this purpose—*i.e.*, to an

infant of six months, five drops of paregoric every three to six hours.

I am still of the opinion that bismuth is useful in these cases, and have found none of the newer preparations superior to the commonly used subnitrate.

With reference to most of the other drugs used in these cases, I must say that to my mind their value is not yet proven.

Diet.—It is impossible in the limits of this article to give more than a brief summary of the principles of feeding these children. In the cases with an acute onset the importance of stopping at once all food, but especially milk, has already been referred to.

For twelve hours, or perhaps longer, all food should be withheld and only cool, boiled water given, but given liberally. Next there may be tried whey, thin barley-water, egg-albumen water, weak mutton or chicken broth; later, beef juice and some of the malted foods. No milk should be allowed for at least four or five days in milder cases, and in severe ones it must usually be withheld twice as long. When begun, it should be diluted five or six times with water, and preferably peptonized. To do much good in these cases peptonization must be complete (two hours), and it is best done before dilution. A laboratory formula for a three-months baby would be: fat, 0.50 or 0.75; sugar, 5.0; proteids, 0.50 or 0.60.

The hygienic treatment of these children is equally important with the measures mentioned above, and includes frequent bathing, both for the reduction of temperature and the allaying of nervous symptoms, and change of air whenever possible from the city to the seashore or mountains. Careful disinfection of napkins in institutions should always be practiced, or we are almost certain to see a spreading of the disease. To this cause and to overcrowding are to be attributed many epidemics in institutions where the question of previous feeding has received due attention.

After all, it is preventive, not curative, treatment which gives the most satisfaction to the physician. This should embrace:

1. A proper application of the well established rules regarding infant feeding; for it is chiefly infants who have previously suffered from digestive and nutritive disturbances arising from a violation of these rules who furnish us with our severe and most of our fatal cases.

2. Careful inspection of milk in cities, and the exclusion of that the temperature of which when received is 60° F. or above; and closer supervision of those who sell milk than is now employed.

3. The adoption of means by which the poor in cities may be furnished during the summer with milk sterilized under competent supervision, either free or at a nominal cost.

4. The general employment of Pasteurized or sterilized milk as an infant food during summer; Pasteurized, among the better classes, where the procedure can be more intelligently done and ice is abundant; but sterilized, among the poor and in tenements, or wherever no ice is to be had.

5. The avoidance of all solid food during the summer in children who are under eighteen months old.

6. The prompt and radical treatment of all the milder forms of indigestion and diarrhea during the hot season.

In our management of infants suffering from intestinal disorders, the great importance of the adoption of energetic measures *at the outset* cannot be too strongly emphasized. Doing the proper thing in the first twelve hours of an attack is vastly more valuable than correct treatment during the whole of the succeeding week.

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TREATMENT OF SUMMER DIARRHEA IN INFANTS.

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It is a well known fact that children have a normal tendency to loose, liquid, and semi-liquid evacuations from the bowels. This is partly due to the anatomical condition of the intestinal tract, and secondly to the nature of the normal food—*i.e.*, breast milk.

The peristaltic movements in a child are very active owing to their physiological development. Young blood-vessels and the lymphatic vessels are very permeable, and the transformation of the surface cells is active and rapid.

The peripheral nerves are superficial, more so than in adults, whose mucous membrane and submucous tissues have undergone thickening by both normal development and mor-

bid processes. The action of the sphincter ani is not very powerful. The frequency of acids (sometimes normal) in the small intestine gives rise to the formation of alkaline salts with purgative properties. Free acids, when found in the intestine, show that (1) the quantity of food is too large; (2) the quantity of the digestive fluid is too small, causing fermentation instead of normal digestion.

The diastatic effect of pancreatic juice is limited at an early age and undigested material is carried off.

Colostrum secreted after birth is apt to give rise to diarrhea. Milk containing too much fat or too many salts, as in anemia, is liable to produce the same effect.

The etiological factors can be briefly outlined as follows:

1. Food, improper quantity and quality of the same, be it breast milk or hand-feeding. It is a well known fact, cited by Jacobi among others, that breast milk can also cause this disease.

2. The most frequent cause is certainly improper bottle-feeding, wherein food unsuited to the infant's digestive abilities is continued, in spite of nature's effort to warn us, as frequently manifested by either vomiting or diarrhea, or both.

3. Milk from mothers suffering with tuberculosis or syphilis. Pregnant women, menstruating and all anemic women, secrete such poor milk that gastroenteric derangements are exceedingly common.

4. The influence of the weather on digestion, especially the extreme heat of summer.

5. Improper disinfection of the nipples after feeding, and consequent decomposition and formation of microorganisms, causing infection; all unsanitary conditions deleterious to the healthy child.

Having noted the various causes of summer diarrhea, chief among which is improper feeding and its resultant diarrhea, the first thing to do is to cleanse the stomach and bowels. This can be most readily accomplished by

Stomach Washing.—To do this, I take a No. 10 soft flexible (rubber) catheter, having more than one opening, and attach it to either a two quart glass irrigator or a two-quart rubber fountain syringe. It is far better to use rubber tubing and a glass funnel, as we can then easily watch the liquid enter, and it is also more practical, as it can be kept clean more readily. For irrigating the stomach I use the following solution:

℞ Table salt, 1 teaspoonful;
Boiled water, 1 quart.

The above quantity for one washing, to be used until the gastric contents flow away clear. To introduce the tube, it is pushed through the mouth, gently but rapidly against the pharyngeal wall, into the esophagus, until the stomach is reached. It should not be anointed with oil, as we normally have so much mucus present that we have nature's own lubrication. The No. 10 tube is for a child between six months and one year of age. Having introduced the tube, I raise the irrigator or funnel or fountain syringe, which has been previously filled with one quart of the salt solution mentioned above, and hold the same about one to two feet over the child's head—no higher. The temperature of the water should be between 100° and 105° F. If there is severe irritability of the stomach, or a tendency to nausea and vomiting, then it is a safe plan to attach the catheter to a long tube, ending in a funnel, and using but one-half to one pint of the salt solution, allow it to enter the stomach slowly. By using the funnel we can siphon off the contents of the stomach by lowering the funnel below the level of the stomach. After emptying the same we can again fill the funnel, and allow the contents to flow into the stomach; and so this process of siphoning can be repeated until the gastric contents flow away fairly clean.

It is a good plan not to continue the washing of the stomach, unless urgent symptoms of gastric fermentation or possibly vomiting of food call for the same. It is my plan to wait at least one or two days and note the effect of the stomach washing before repeating it.

Having cleaned the stomach, it is a good plan to prescribe rest, and to insist on leaving the child several hours, without giving food of any kind. I usually order a small quantity of an alkaline water, either seltzer or Vichy, apollinaris water, or plain boiled (sterilized) water. A wineglassful of lime-water, several times a day, independent of food, is also advantageous.

In all forms of diarrhea milk must be discontinued. The details of feeding will be discussed later on.

When we find a decided objection on the part of the patients or their friends to the above method of cleansing the stomach, then we must resort to

Drug Treatment.—For this purpose a large dose of calomel, say one-fourth grain for a

child one year old, is given every two or three hours, until watery stools are produced, and this is followed on the succeeding day by two or three doses (a teaspoonful each) of castor oil. The tendency to constipation following a dose of castor oil makes it a valuable remedy in all forms of diarrhea. Bismuth is the sovereign remedy; I have used the subcarbonate, subnitrate, salicylate, and betanaphthol bismuth, and find the latter an extremely valuable preparation. In doses of two to five grains every few hours, mixed with a little boiled water, it not only agrees very well with children, but seems to exert a healing effect in that form of bacillary diarrhea which is met with in the acute catarrhal gastroenteritis.

Salol in doses of one, two, and three grains, for each year respectively, is another valuable remedy; so also is resorcin, in doses of one-fourth to one grain for a child one year old, three or four times a day. It is advisable not to add sugar for sweetening, but only glycerin; the latter, however, in very small quantities, as it has a tendency to loosen the bowels.

Nitrate of silver in doses of one-fiftieth of a grain for a child one year old, repeated every three or four hours, is valuable in some cases.

Tannalbin and tannigen in doses of from one to ten grains seem to act well in some cases, poorly in others, but are well worth trying in those desperate cases in which we change the drugs, if they are ineffectual.

Hypodermic Medication.—In forms of collapse, where constant diarrhea has drained the system, it is a good plan when the extremities are cold to give hypodermic injections of ten to twenty drops of whiskey. Sulphuric ether can also be administered hypodermically in the same dose as whiskey. Another valuable stimulant is musk; two to three drops of tincture of musk administered hypodermically every hour will frequently rouse the circulation.

When this form of treatment proves unsuccessful, and the condition of collapse continues, then a good plan is to resort to hypodermoclysis. This consists of introducing a long aspirating needle (previously sterilized by boiling) into the loose connective tissue of the abdomen, and allowing several pints of the normal saline solution, containing about 7½ grains of table salt to a pint of water, temperature 100° F., to flow in subcutaneously. It is remarkable to note how much liquid can be introduced in this manner, and some of the most violent of cases of collapse will respond very rapidly. I have seen children who previous to this injection were pulseless suddenly brighten up, and within a few minutes show a distinct radial pulse. Too much care cannot be bestowed on the sterilization of every part of the apparatus, and the absolute cleanliness of the water to be used for this purpose.

Rectal and Colon Flushing.—It is advisable to irrigate the colon and rectum by placing the child on its left side, introducing a flexible rubber tube and anointing with carbolized vaselin. Having passed the external sphincter, I invariably allow the water to flow into the rectum in order to balloon the same, and then continue to push the tube beyond the rectum into the colon. A little difficulty is sometimes encountered, owing to the spasmodic contraction of the muscles, but if we wait a short time, using a little patience, the tube can be easily pushed into the colon. The method pursued is the same as described previously in irrigating the stomach, excepting that we do not seek to siphon off the contents of the bowels, but rather allow a pint or a quart of the warm saline solution to flush the bowels, and in this manner wash away as much of the offending débris as exists within the bowels. I have frequently used cold water, but I find much greater benefit from the use of a warm solution of the temperature of 100° F.

Besides table-salt solution, a one-per-cent boracic acid solution can be used, so also can a 1-to-10,000 solution of bichloride of mercury. A solution of ten grains of tannic acid to a pint can also be used, and a 1-to-1000 solution of nitrate of silver is indicated in other cases.

Some of our cases require irrigation once in twenty-four hours for one week, and others again are so greatly improved after one rectal washing that it is not necessary to resort to it again.

Starch injections, made by adding two teaspoonfuls of the ordinary starch to a teacupful of warm water of a temperature of 105° F., may be given. They are very advantageous, as the colon changes starch into dextrin, which is easily absorbed. Thus not only does the latter cleanse, but it is also nutritious. Large quantities of saline solution can be introduced directly into the circulation by means of cold washing, thus adding to the volume of the blood. I therefore lay great stress on this form of treatment, as one of the most valuable for this depleting condition.

Thromboses can frequently be avoided by these injections.

When severe tenesmus exists, painting of the lower end of the rectum with a two-per-cent solution of cocaine is frequently very advantageous. Prolapse of the rectum and anus can frequently be prevented by applying a strip of rubber adhesive plaster from one buttock tightly to the other, so that the buttocks will support the bowel and mechanically prevent its protrusion.

Feeding.—Milk in all forms is to be discontinued for at least one week, unless the child is breast-fed, and if the latter, then the breast feeding should be stopped for at least one-half to one whole day, and instead barley-, rice-, or farina-water can be substituted, no matter what the age.

To make rice-, barley-, farina-, sago-, or cornstarch-water, take a tablespoonful of either of the above to a pint of water and allow it to boil a short time, then strain through cheese-cloth, and add enough boiled water to make one pint in all.

Flour Ball: A small bag made of cheese-cloth is to be filled with wheat flour, and suspended or immersed in a saucepan of water. This is to be boiled from six to twelve hours constantly. The flour becomes agglomerated into a hard mass, and is doughy only on the surface. It is then removed and allowed to dry, and after removal of the crust it is grated, and makes a whitish-yellow powder that is very nutritious. I usually commence with a teaspoonful to ten or twelve tablespoonfuls of water, with a pinch of salt and sugar, for one feeding. If it agrees well with the child, then I increase the quantity of the flour ball by adding a half-teaspoonful more every three days to the same quantity of water. If this agrees very well and the child seems to assimilate the food, then I usually, after one week of flour-ball feeding, substitute one ounce of cow's milk for one ounce of water, so that the formula would be one teaspoonful of flour ball, four ounces of water, one ounce of cow's milk, pinch of salt, and some lump sugar, for a child nine months old and older. This formula I have found eminently successful in the treatment of summer diarrhea, but I usually omit the milk.

A good plan is to feed with intervals of three and four hours between each meal, and if the usual amount of feeding was six or eight ounces, then it is a good plan to give but four or six ounces, or either rice-, barley-, or farina-water. Albumen-water, made by adding the white of a raw egg to a wine-glassful of sterilized water and a pinch of salt, is very good to allay thirst, besides adding to the nutrition of the child. Ice-cold tea (the ordinary black and green tea mixed) can be given *ad libitum*.

In using the starch enema for washing the bowel, the albumen of a raw egg, or the yolk of an egg or a few drops of expressed steak juice, can be safely added, provided we add a small quantity of pancreatin and bicarbonate of soda to predigest or peptonize it.

Hygienic Treatment.—Cold bathing or bathing in cold or lukewarm water, to which some sea salt has been added, is very advantageous; the child should be put into the largest and coolest room in the house, the temperature of which is from 68° to 75° F. If sea air is obtainable, then it is wise to remove the child to the seashore, or at least to insist on daily excursions.

Cold applications to the head and an ice-bag over the fontanel, cold towels changed every fifteen or thirty minutes over the abdomen, will tone up the nervous system in addition to reducing the temperature. I am a decided opponent to antipyretic drugs, and never use antipyrin or phenacetine, but invariably resort to hydropathic measures for the reduction of the temperature. Sponging of the body with alcohol and water is very grateful and refreshing, besides a good antipyretic measure. If cyanosis and cold extremities exist, then it is wise to resort to hot mustard baths, to stimulate the circulation.

The above is the plan that I have used and advocated for the last ten years. We cannot set up cast-iron rules; we must individualize and study each child's digestion, the stools, note the weight (scales) weekly, and follow carefully each change of food until we are satisfied that we have the proper form of diet.

TREATMENT OF SUMMER DIARRHEA IN INFANTS.

By Edwin E. Graham, M.D.,
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During infancy and early childhood the mucous membranes are especially liable to become the seat of various lesions. The influence that dentition exerts is largely controlled by the child's physical condition. Healthy children often pass through this dangerous period without any symptoms ref-

erable to the appearance of the teeth. In delicate children dentition may and not uncommonly does aggravate the symptoms arising from any disease. In these children it must be remembered that the disorders occurring during the period of dentition may be due to this condition of weakened vitality and not to the teething *per se*. The diagnosis of teething diverts the mind of every one concerned from the vital subjects of food, air, and hygiene.

The non-specific directions concerning the feeding of children often left by the attending physician constitute also a factor that contributes largely to the so-called summer diseases, marasmus and teething diarrhea. The marked advances recently made in the feeding of infants and children, the advantages derived from the knowledge of how to give milk of specific percentage and the adapting of this percentage milk to the weakened digestive powers of the sick infant, is a matter of vital importance, and the results obtained are often favorable or otherwise in proportion to the skill displayed in this modification of the child's food to its weakened digestion and assimilation. It should be remembered that a nervous woman, overworked and worried by household cares, cannot supply suitable milk for a child. Under such conditions rest for body and mind, with systematic outdoor exercise and wholesome food, and an abundance of undisturbed sleep, will often accomplish wonders. The diet of the nursing mother should be carefully supervised. Excessive drinking of tea, coffee, or alcoholic stimulants, the eating of dainties, overeating, especially common in wet-nurses who from the change in their surroundings (from poverty to abundance) often are led to eat to excess — all these are factors which count against the rapid convalescence of infants ill from any gastrointestinal disorder.

In the selection of a wet-nurse one should be careful to exclude all possibilities of syphilis and tuberculosis; she should be between twenty-three and thirty-five years of age, of a quiet, even temperament, and her breasts should be well formed, hard, and firm, the milk flowing readily upon light pressure, and, when possible, its quality should be determined by chemical analysis. Much can be learned by seeing the wet-nurse's own child, as its condition, whether weak or strong, points accordingly to a poor or good supply of breast milk. The knowledge that milk is a most fertile culture medium for germs of all kinds, that milk is sterile as it leaves the healthy cow, and that as ordinarily received it contains dirt and filth from the cow's udder and the milker's hands, that it is rarely or never free from germs, and that numerous cases of diarrheal disease have been traced to the milk supply, should certainly cause both patient and physician to insist on the establishment of dairies from which clean and good milk is obtainable. Cases of continued malnutrition following severe diarrheal diseases are often with advantage given non-Pasteurized milk. The plan suggested by Seibert, of filtering the milk through a thickness of one-quarter of an inch of moist cotton, is sufficient to remove not only all impurities, such as dust, dirt, cow's dung, etc., but also about seven-eighths of the germs contained therein before filtration. The filtration alters little if any the amount of fat, proteid, and sugar present. Care must be taken to allow the first few tablespoonfuls filtered to escape, as this part of the milk contains a large proportion of the germs that escape removal.

Barley-water, lime-water, and sterile water are used as diluents of milk, the two last mentioned being preferable during the acute stages of the summer diseases, the barley-water being of service during the period of convalescence for infants after their ninth month.

Breast-fed babies during the acute stages may be given a small quantity of sterile water just before nursing, or the milk pumped from the breast may be diluted and given. If such milk is retained I believe more rapid results are usually secured than when breast milk is withdrawn, although many cases are benefited by a complete withdrawal of milk for the first few days.

Peptonization is often of signal service; we can by its help relieve the strain upon the digestive apparatus and still give a fair or adequate amount of nourishment.

The influence, etiologically, that microorganisms exert in the production of the summer diarrhea of infancy is admitted by all. The worst and most rapidly fatal cases often show post mortem but very slight lesions, and cases that from a clinical standpoint may seem very light often show post mortem extensive pathological changes. Some of the forms of diarrhea are undoubtedly infectious. Clinically we see cases with marked nervous symptoms, high fever, severe diarrhea, and rapid emaciation ending fatally, and the autopsy reveals very slight lesions. The conviction is forced on one

that these cases are due to the absorption of toxic substances produced by bacteria, the microorganisms reaching the intestinal tract mainly through the food.

The function of digestion and absorption must not, however, be overlooked, and proper hygienic, dietetic, and medicinal treatment must be combined with suitable antiseptic remedies. It is to be remembered that intestinal digestion is of much greater importance to the baby than stomachic digestion, the digestion of milk being largely accomplished in the small bowel.

The Treatment of Acute Intestinal Indigestion, or, as it is often called, Simple Diarrhea. —Prophylaxis includes what has been said earlier in this article on infant feeding. Overfeeding, improper food, or the quality of the food may be at fault. Children from six to eighteen months of age are especially liable, as weaning, bottle-feeding, and the second summer all fall within this period. All means employed to improve the hygienic conditions of the food are important. Removing the children from damp, poorly ventilated rooms to the open squares, or better to the country or seashore for a few weeks, or a daily visit to one of the free sanitariums now usually found near all large cities, is of distinct advantage. A weakened physical condition is a distinct predisposing cause, the healthy baby being less susceptible to diarrhea than the weaker one.

As by far the greater number of cases of summer diarrhea begin as acute intestinal indigestion, the prompt treatment of this condition becomes a matter of great importance. Undigested and decomposing food is always present in the bowel, and in the acute cases inflammatory changes in the intestinal mucous membrane are not present. Hyperemia and an increased secretion of mucus are usually all that exist. As a rule, to which one occasionally finds marked exceptions, it is found that the longer the disease has existed and the more marked the symptoms, the greater are the pathological findings in the bowel, the lower ileum and colon being the common seat of such inflammatory changes. Absolute rest should be insisted upon; infants, if fretful, may be carried on a hair-pillow; older children should be kept in bed. All soiled diapers should be removed from the room and washed in an antiseptic solution. The child if possible should be removed to good hygienic surroundings, and a tepid bath be given every day. During the warmest hours of the day the child should preferably be kept in a cool, darkened room. In the cooler hours of the morning, afternoon, and evening, keep the baby out-of-doors in the baby coach rather than on the lap. Fresh air is very important for these cases, and the presence of fever is not sufficient cause for keeping the infant indoors. The clothing should be loose, of light flannel or wool—a shirt, diaper, stockings, and long, loose outer garment being all that should be worn. Extra covering may be necessary at night. The room should be large and well ventilated, care being taken to protect the child from draft. During the first twelve or twenty-four hours the digestive organs should be given, if possible, absolute rest; this can only be accomplished by withdrawing food entirely and giving during this period small quantities of sterile water, one to two ounces every hour, to which five or ten drops of brandy may be occasionally added if much depression is present.

Breast-fed infants should be kept from the breast during the first twelve or twenty-four hours, when nursing may be cautiously resumed, the interval between nursings lengthened, and the time allowed for nursing shortened; and later may be given, before nursing or the breast, milk diluted as has been before mentioned. If vomiting is present to any marked degree, milk should, in the case of bottle-fed babies, be entirely withheld for a period of several days or more, and during this time the infant should be given freshly expressed beef juice, mutton broth, or beef broth, or albumen-water made by dissolving the white of one egg in half a pint of sterilized water. When the acute symptoms have largely disappeared, cow's milk greatly diluted or peptonized may be gradually substituted, and the proper diet according to age be slowly returned to.

In order to clear the bowel of fermenting, decomposing food, a laxative of castor oil two teaspoonfuls, or calomel one to two grains, may be given to a child one year old.

Salol and bismuth should now be administered, from four to six hours being allowed for the laxative to operate. Salol two grains, bismuth subnitrate ten grains, may be given every three hours to a child of one year. Opium may or may not be required; it is always to be given in a separate prescription, and only to be administered for two distinct reasons—to check excess of peristaltic action, and to relieve pain. To an infant of twelve months Dover's powder one-fourth grain, one-half minim of the deodorized tincture of

opium, or from six to eight drops of paregoric, may be given every two, four, or six hours as occasion demands. Salol and bismuth should be continued some days, the dose being gradually diminished, and the remedies not discontinued entirely until some days after all symptoms of the disease have disappeared.

Chronic Intestinal Indigestion, Chronic Enterocolitis, Chronic Diarrhea.—The prophylaxis includes all that has been previously mentioned on infant feeding, hygiene, fresh air, etc. Summer heat and a weakened constitutional condition are powerful predisposing causes. We have in this disease food in the intestine undergoing fermentation, causing continued irritation of the intestinal mucous membrane and resulting in inflammation, and not uncommonly in ulceration. The microorganisms present and the bacteria introduced with the food are factors tending to increase the inflammation already present in the lower ileum and colon. The prophylaxis of this disease therefore embraces the prompt treatment of acute intestinal indigestion and all acute inflammations of the intestinal tract, the prognosis being more unfavorable and the intestinal lesions more serious in proportion to the acuteness, severity, and frequency of the gastrointestinal symptoms that antedate the chronic condition. The treatment by diet follows the rules laid down for acute intestinal indigestion. Beef juice or animal broths may often with advantage be continued for some days, as their small bulk and slight residue in the bowel have little tendency to promote peristalsis or keep up fermentation.

Stimulants are usually required, ten to twenty drops of whiskey every two or three hours being generally sufficient. Opium does not occupy the same prominent position as in acute indigestion; it is especially useful in the acute exacerbations to relieve pain and check excess of peristalsis. It is to be given in a separate prescription and in the same doses as in acute intestinal indigestion. An occasional laxative is of advantage, as castor oil or calomel. Bismuth subnitrate ten grains, salol two grains, given for long periods, have in my hands proved the most successful drugs. Large doses of bismuth must be given to accomplish the desired result. Bismuth salicylate, five grains, is also in this disease a valuable drug.

Irrigation of the large bowel, carefully and thoroughly carried out each day with a fountain syringe and No. 12 catheter (not too flexible) is of decided benefit. A gallon of fluid should be employed for each irrigation, the liquid being at 98° to 100° F. Saline solution, boric acid solution, or nitrate of silver, 7½ grains to the gallon, have all in my hands been most useful. The child lies with the hips elevated; the catheter, well oiled, is allowed to gently pass six or eight inches up the bowel, the liquid being allowed to flow gently during its introduction, and the reservoir not raised more than three feet above the child's body.

In the more severe cases of chronic intestinal indigestion marked catarrhal or follicular inflammation of the lower ileum and upper colon is usually present, and follicular ulceration is not uncommon. Astringent enemata in these cases often do much good—*i.e.*, the saline or borax irrigation may be followed by six or eight ounces of water containing three drachms of bismuth subnitrate. Absolute control of the child's diet is essential to success, and the best hygiene, with plenty of fresh country or seashore air, is of importance.

Acute Ileocolitis, Summer Diarrhea.—This is the disease to which hundreds of children fall victims each summer. It is largely a disease of hot weather, and is rarely seen in cool weather except under bad hygienic surroundings. The lower part of the ileum is the seat of distinct inflammation, the most marked lesions being in the neighborhood of the ileocæcal valve. These lesions are largely due to the microorganisms present. Prophylaxis includes all that has been said previously in connection with diet, hygiene, bathing, clothing, etc., and the prompt treatment of every diarrhea, no matter how mild the attack. Milk is forbidden during the first few days, and beef juice or animal broths may be allowed during this period; preferably, however, nothing but sterile water with small doses of whiskey should be administered during the first twenty-four hours. In bottle-fed babies the prompt securing of a wet-nurse may be the only means of saving life. All soiled diapers should be washed in an antiseptic solution. The initial laxative is of advantage unless contraindicated by the child's extreme prostration.

Calomel in small doses, $\frac{1}{20}$ grain every two hours, especially if much nausea and vomiting are present, and given early in the disease, is one of our best remedies. It is rarely necessary to continue its use more than twenty-four to thirty-six hours at one time. Opium will be required in almost every case;

it is to be given according to the rules laid down earlier in this article. It should never be given in sufficient quantity to entirely check peristalsis. Hot flaxseed poultices applied to the abdomen for twenty-four hours, or a spice plaster kept in position long enough to well redden the skin, are helpful in relieving pain and checking vomiting.

Bismuth subnitrate is capable of doing much good; large doses must be given—two drachms to the usual twenty-four-hour amount required for a child twelve months old. Salol, two grains, may with advantage be combined with each dose of bismuth given. Bismuth salicylate five grains, benzonaphthol one grain, and naphthalin given in two-grain doses, have been used with benefit. Stimulants will be required in every case. The best antiseptic results are obtained by the external application of cold in the form of bathing or sponging.

The use of local treatment by means of irrigations is in this disease an absolute necessity; many cases are undoubtedly lost through a failure to appreciate their usefulness. The amount of liquid used—saline solution, boric acid solution, or nitrate of silver solution—must be large (a gallon), and the irrgations must be repeated daily. Enemata of ice-water, a pint repeated every few hours, are also of great benefit.

THE OPERATIVE TREATMENT OF WELL ADVANCED CARCINOMA OF THE UTERUS.

VEIT (*Berliner Klinische Wochenschrift*, No. 15, 1899), though placing little credence in the majority of published statistics, holds that certain of them offer conclusive evidence as to the number of permanent cures accomplished by radical operation in cases of uterine cancer. Among these he ranks Krukenberg's publication, in which it is stated that out of 149 collected cases operated on five years or more before the report, thirty-six were free of recurrence. Fraenkel states that 82 out of 230 cases were permanently cured. Hence it is perfectly evident that the disease must be ranked with those which offer a good prospect for entire removal. Krukenberg, however, personally told the author that he could note in his own service not more than eight per cent of cases free of recurrence for five years or more.

As a means of increasing the percentage of radical cures an early diagnosis, an operative technique which avoids the danger of infection, and an extensive operation are necessary.

A timely diagnosis is an element of the first importance in assuring a permanent cure. A cancroid of the vaginal portion occurs in early life, and malignant disease of the uterine body after the menopause. An early diagnosis of both these forms is not difficult, the former being characterized by bleeding on slight mechanical disturbance; the latter by a spontaneous bleeding after the menopause. Scrapings examined with the microscope usually give positive evidence. Cancerous nodules in the cervix, or infiltration of the cervical mucous membrane, are more difficult of detection; the latter causes a catarrhal discharge, the former simply pain in the sacrum, pressure, and similar vague symptoms. Bleeding does not occur early. Swelling of the cervix, particularly behind the external os, thickening and increased density, together with a certain patulousness of the os to the examining finger, combined with excision of a portion of the apparently diseased tissues for microscopical examination, may aid in making a diagnosis.

As to the question of operation when the disease has extended beyond the uterus, in the vast majority of cases this is hopeless, since a complete removal is impossible. The operation required is, moreover, so extensive that many patients will necessarily perish as an immediate consequence. The removal of the iliac and vertebral glands should always be practiced when these can be felt. At the best, operations upon these cases of widespread disease can save only an occasional one; hence the main hope of better statistics in operation for cancer lies in a more general, cultivated diagnostic skill.

RESECTION OF THE GREATER PART OF THE STOMACH FOR CANCER.

LANDOUZY (*Journal des Praticiens*, No. 11, 1899) reports the case of a woman, forty-one years old, who suffered for several months from a cancer of the pyloric region of the stomach. It was not ulcerating, but was easily accessible to palpation; it was the cause of incessant vomiting and rapid emaciation. The entire diseased area was resected, together with some neighboring involved ganglia. About three-fifths of the stomach was removed, and the remainder was connected with the jejunum. The patient recovered and was well four months later.

The Therapeutic Gazette

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Leading Articles.

A SYMPOSIUM ON THE SUMMER DIARRHEA OF INFANCY.

It has always been the endeavor of the THERAPEUTIC GAZETTE to present to its readers information which would be of actual value in daily practice, and with this object in view we have arranged this month for the publication of a series of papers in which the treatment of the summer diarrhea of infancy is discussed by physicians of wide experience both in private and hospital practice, who occupy teaching positions which qualify them to speak with authority.

It is of interest to note that all are agreed upon the necessity of carefully regulating the diet, even of nursing children who are suffering from this condition, and we are quite in accord with these contributors in insisting upon the withdrawal of milk until the digestive organs have an opportunity to rest and to get rid of any of the products of fermentation which may have resulted from the ingestion of improperly prepared or impure milk, or from temporary inability on the part of the digestive organs of the child to deal with its natural food.

THE EMPLOYMENT OF QUININE IN MALARIA.

If there is one therapeutic procedure more certainly fixed in the minds of modern clinicians than another, it is the employment of quinine as a specific in the treatment of malarial infection; and while we know that certain forms of the disease are conquered with greater difficulty than others by the use of this drug, the fact remains, as has been proved by indubitable clinical and experimental research, that quinine is *facile princeps* the remedy.

It seemed somewhat startling therefore when it was announced that Dock, of Ann Arbor, Michigan, proposed reading a paper, with the title similar to that heading this editorial, before the Section of Practice of Medicine of the American Medical Association, for it seemed that such a title indicated that we were not confident of the correctness of this method of treatment; but those who heard Dock's paper soon learned that there was no intention of doubting its usefulness, but that his endeavor was to indicate the proper employment of the drug in more minute detail than is commonly accorded it. In this respect we think he did a distinct service, for there can be no doubt that in many instances excessively large doses of quinine are administered. To be sure, certain types of fever require large doses, but on the other hand we fear that too often large doses are given of which only a part is immediately absorbed and only a part combats the malarial organism, while the greater portion is absorbed too late to be of any benefit, and may be not only useless but harmful.

It has been pointed out by some clinicians that in their opinion the best time to administer quinine is immediately after the paroxysm, as under these circumstances it acts as a distinct prophylactic in regard to subsequent attacks; and by others that it should be given four or five hours before an expected paroxysm, so that it may be absorbed and exercise its effect upon the malarial organism early enough to prevent the characteristic changes which are followed by such disastrous results to the patient.

It seems to us that neither one of these rules can be universally adhered to, and that the administration of the drug several hours before an expected attack is the correct method to employ in those patients which have widely separated attacks, every second or third day for example, whereas in the

quotidian type, or in any infection by the estivo-autumnal parasite, where in many cases fever of the remittent rather than the intermittent variety occurs, the administration of the drug during the period of decline is probably the more correct method.

In the discussion of Dr. Dock's paper it seemed to be universally agreed that a mercurial, or other hepatic stimulant, should precede the quinine. In regard to malarial hematuria, the conclusion seemed to be that in a certain number of cases, exactly what class it is difficult to determine, quinine is capable of doing harm, while in others it is capable of doing distinct good. The probable solution of this vexed question as to the administration of quinine in blackwater fever lies in the ability of physicians to make examinations of the blood for the malarial parasite. If the malarial parasite is present, the damage which it is capable of doing, aside from any condition of the urine, is sufficiently grave to justify the physician in administering quinine; but if, on the other hand, the malarial parasite is not found in the blood and the bloody urine is but a manifestation of malarial cachexia, associated perhaps with a chill due to other causes, then quinine has no indications for its use and is probably capable of doing harm.

An interesting question also arises in regard to the value of quinine when given hypodermically. It was suggested by one or two speakers that it be used in this way in those cases in which large doses are inadvisable and in which the condition of the stomach was such that quinine could not well be given, either because it would not be absorbed or because there is vomiting; but the editor of this journal suggested that one of the reasons why hypodermic injections of quinine were not satisfactory was that the drug was precipitated by the alkaline juices of the tissues, unless it was given in an acid solution, and being precipitated was so slowly absorbed that it really produced no effect upon the attack for which it was administered. It was also suggested by the writer that in urgent cases of malarial infection, when the parasite is found in the blood, the drug should be used according to Bacelli's method. In other words, the hydrochlorate of quinine should be dissolved in normal saline solution and injected intravenously into one of the veins of the lower extremities, as by this means any depressing effect which might be exercised by the quinine upon the heart would be avoided and instantaneous action upon the parasite would be accomplished. Of course, this method is not to be employed except in very urgent cases, nor is the hypodermic method to be used, since it is apt to be futile and produce much subcutaneous irritation.

Discussing these remarks, Dr. J. C. Wilson expressed his belief that the hypodermic use of quinine was advisable, but the further progress of the debate did not show that the others present agreed with him; indeed, on the contrary, hypodermic medication of quinine in malarial fever was not received with general approval.

THE TREATMENT OF ADVANCED TUBERCULOSIS.

There are few conditions which appeal to the sympathies of the physician more strongly than does advanced pulmonary tuberculosis, and there are few in which he is so powerless to do the patient much good. There comes a time, however, in the treatment of such a patient when it is the duty of the physician, who is utterly unable to restrain the progress of the disease, to do those things which will render the remaining days of life most comfortable and satisfactory to the patient and his friends, and undoubtedly in this late and hopeless period of the disease much can be done to relieve suffering and discomfort.

It is not our intention in this editorial to deal with all the measures which can be used under these circumstances. Personally we believe that an active normal liquid, or tincture, of cannabis indica, properly used, will very frequently, by benumbing disagreeable sensations and checking cough and improving the appetite, do the patient a great amount of good. The sweats, if they are profuse, can also be controlled by camphoric acid, and diarrhea relieved by pleasant astringent mixtures, while neuralgic pains can be relieved by a local application of menthol and similar substances.

A method which has found some popularity in France is the use of the combination of Hoffman's anodyne, extract of opium, and a syrup. Thus Castel prescribes the following mixture, all of which may be taken in twenty-four hours:

> Hoffman's anodyne, 6 drachms;
> Fluid extract of opium, 5 minims;
> Syrup of lettuce, 4 ounces.

One or two teaspoonfuls or more of this may be taken from four to eight times in the twenty-four hours with advantage.

This method of treatment has no particular disadvantage save perhaps that it might tend

to produce constipation, which is a disadvantage in those who are not suffering from diarrhea; but it is claimed that it also tends to check night sweats, that it increases the appetite, diminishes the cough and expectoration, relieves the dyspnea, and actually increases the weight. Nor is the effect solely to relieve and benumb; by its influence over tissue waste it probably actually aids the patient in maintaining his strength.

There is only one suggestion which we have to add to this, namely, that in those cases where the opium seems to produce nausea the following day it may be wise to employ morphine in place of the opium, and when the morphine seems to produce disagreeable after-effects to add to the mixture a small dose, say $\frac{1}{100}$ of a grain, of nitroglycerin, which in many cases may prevent the disagreeable after-effects of the opiate.

A NOTE IN REGARD TO THE TREATMENT OF OBESITY.

Not long since we were wont to regard obesity as dependent upon some unknown perverted physiological factor which was supposed to be practically identical in each case, but advances which have been made in the study of metabolism and in the influence of thyroid gland upon nutrition have proved that obesity may be due to many different causes, in some of which the use of thyroid gland, by correcting disordered metabolism, may give relief, while in others it fails to be of very material advantage.

An important point to be remembered in the administration of thyroid gland in the treatment of obesity is that this substance not only causes a great loss of hydrocarbons, but also that it very distinctly increases tissue waste in the nitrogenous substances of the body, and therefore, while it is being given to cases of obesity, their diet should be ample in the way of meats and similar nutritious food.

Exercise in many of these cases of obesity must be regulated with the greatest care, since often the heart power, while the thyroid gland is being taken, is not sufficiently strong to stand the severe exercise to which obese persons often subject themselves, with the false idea that it is the proper thing to do. Walking must be regular and moderate, and should be frequent rather than prolonged to the point of severe fatigue. Massage is often exceedingly valuable in these cases, as it aids in the circulation of the blood and tends to keep moving a large amount of the juices of the body. In some instances, probably those in which the thyroid will do the most good, the obesity seems to be distinctly a hereditary condition.

An interesting paper in reference to this fact has recently appeared in *La Presse Médicale* of May 24, 1899, by Chauffard. In this article he gives the genealogical tree of a family which suffered from hereditary obesity, and still another which suffered from obesity, gout, and diabetes; in other words, the family was one in which there was a perversion of the normal metabolic processes.

In one case, of a young man of thirty-four years suffering from hereditary obesity, death occurred from cardiac failure.

THE NECESSITY OF USING CAUTION IN PRESCRIBING CLIMATE AS A REMEDIAL AGENT.

In the midst of a large amount of study which has to be carried out by the modern medical student, it is very difficult to give him definite and clear ideas about remedial measures other than drugs, and there are few schools in the country which teach students the dominant facts in regard to climatology, balneology, and similar useful remedial processes. As a result of this lack of knowledge, many physicians are wofully ignorant and are unable to give their patients competent advice in regard to the climate which they should seek for the benefit of their health.

There are two classes of patients to which the question of climate is most important and in which bad advice is not only followed by no benefit but is fraught with danger, namely, patients suffering from pulmonary tuberculosis and others from renal disease. Physicians of experience who are in the habit of referring patients to climatic resorts are well aware of the fact that a moderately high altitude, dryness of the air, stillness and freedom from dust, with many hours of sunshine, are absolute necessities for the best results which are to be obtained, and that for renal cases a gentle balmy climate, with moderate temperature which is as near as possible constant, is an essential feature.

Too frequently physicians hold out vain hopes to patients in regard to what climate can do for them, and actually do not recognize the fact that after pulmonary and renal disease has advanced to a certain stage death is inevitable, and that very soon. Under these circumstances patients are advised or

permitted to leave their homes and make an endeavor to regain that health which is impossible, only to die from exhaustion on the journey or soon after arrival, and by reason of their large expenditures to leave those who are dependent upon them even more poverty-stricken than before.

We are glad to notice that the *Denver Medical Times* has in its May issue an editorial entitled "Patients Not Fit for Climatic Treatment in Colorado," in which the writer calls attention to the fact that many unfit patients are sent to that State who are so far gone that they die in the hospitals within three weeks after arrival, and a vivid description is given of how frequently the poor patient goes to Colorado with emaciated form, cyanotic lips, flushed cheeks, graveyard cough, and too often exhausted exchequer. He is unable to sleep in a recumbent position, develops edema of the feet, and unable to return alive, dies far from home in lonely misery.

As this editorial writer well says, if such patients are to go to Colorado, let them go if possible within a few weeks of the beginning of the cough, and if they cannot be sent before excessive destruction of the lung occurs, be merciful enough to let them remain at home surrounded by friends and home comforts during their last hours, that they may at least die in peace.

THE TREATMENT OF PULSATING EXOPHTHALMUS BY LIGATION OF THE CAROTID ARTERIES.

A pulsating exophthalmus, secondary to traumatism, is nearly always due to an injury of the internal carotid artery and cavernous sinus, mechanically so placed that the arterial blood passes directly into the lumen of the sinus. The increased blood-pressure resulting from this causes venous stasis.

Boden (*Deutsche Zeitschrift f. Chirurgie*, May, 1899) states that the symptoms of this injury develop in a shorter or longer time, depending upon whether the wound of the carotid is a small or a large one. Swelling of the eyelids, possibly such marked serous infiltration that the functions of the eye muscles are abolished, chemosis, and marked venous dilatation, are noted. The papilla becomes edematous, the retinal vessels are dilated, retinal bleeding is frequent, and the entire eyeball is pressed forward. The superior ophthalmic vein becomes dilated, incident to the increased pressure, and its walls are thicker. The pulsation of the eyeball can be both seen and felt. This venous dilatation may extend upward over the forehead. A bruit, continuous, with pulsatile exacerbations and often loud and distinct, can be heard, and the patient commonly complains of a beating headache, and failure of vision. The lesion is often bilateral.

As to the treatment, the patient should be put to bed and kept under the influence of narcotics, when the communication between the artery and vein is very small. Under such circumstances the opening may close under the "rest treatment."

Compression of the common carotid artery is a means of treatment which naturally suggests itself. The artery is accessible, and by firm pressure upon it a condition of blood stasis is encouraged which favors the formation of an occluding clot. Instrumental pressure is, however, practically impossible, while digital pressure has proven inefficient and extremely painful.

The oldest treatment still remains the best—that is, the ligature of the common carotid of the affected side. In a case reported by Boden, this operation was followed by immediate relief of the unbearable headache, by return to normal vision, and by recovery from all symptoms. It often occurs that ligation of the artery of one side is not efficient. A collateral circulation in the case of unilateral ligation is supplied by the vertebral arteries, by the carotid of the other side, and by the anastomosis between the superior and inferior thyroids. If this collateral circulation develops too quickly, insufficient time for the organization of the thrombus is allowed, and symptoms recur, in which case ligation of the carotid of the other side is indicated.

Of fifty-two collected cases of unilateral ligation of the common carotid artery for pulsating exophthalmus, twenty-six were cured, twenty were improved, six were not improved—that is, eighty per cent were either cured or improved. In six of the cases, because the operation was undertaken too late, the sight of the eye was not restored.

Concerning the mortality of the operation—ten per cent—this is distinctly high. Three cases perished of sepsis, two of hemorrhage, and in one the cause of death was undiscovered. Thus, in five out of the six fatal cases, death could have been averted by a more careful and modern technique.

Both common carotids have been ligated for pulsating exophthalmus six times. In

the first case an interval of fourteen months elapsed between the two ligations. The vision of the eye was lost. In the second case an interval of a month elapsed between the two ligations. Four weeks later the patient was entirely well, and the power of vision was markedly increased. In the third case an interval of about two months elapsed between the two ligations. The cure was a complete one. In the fourth case the result was uncertain. In the fifth case an interval of sixty days elapsed between the two operations. The patient gradually improved, and after a year was almost well.

The sixth case is reported by Boden. The patient had received a blow on the skull, and four months later presented himself with the characteristic symptoms affecting the right eye. The right carotid was ligated under Schleich's anesthesia and divided between ligatures. A month later, after five days' digital pressure, the left common carotid was ligated. There was no immediate relief from pain, and though the pulsation was diminished, it was still persistent. The bruit could he made to disappear by pressing on the left external carotid, the left superior thyroid, or the right external carotid. The head pains got better after a time, but recurred with almost their original violence. A mass of blood-vessels, the size of a hazelnut, placed on the orbital margin and pulsating markedly, if pressed upon, caused a cessation in both the headache and the bruit. Guided by this fact Dollinger made an incision along the upper orbital border, and after ligation of a number of smaller veins, exposed the superior orbital vein (which was as large as a lead-pencil) and placed a thread about it. Thereafter all subjective symptoms ceased.

In case bilateral carotid ligation fails to cure the pain, bruit, and pulsation of the arteriovenous aneurism, there is still left a complete cleaning out of the orbital contents, a procedure less severe than it at first seems, if it be recalled that vision is commonly destroyed by the disease when unchecked.

THE DIAGNOSTIC VALUE OF RENAL PERMEABILITY TO METHYL BLUE IN SURGICAL AFFECTIONS OF THE KIDNEY.

Since the chemical and physiological examination of the urine determines simply the ingredients of this fluid and their toxicity, throwing only an indirect light upon the question as to the amount of toxic substance retained in the blood, incident to imperfect functioning of the kidney, any method that will enlighten us as to the eliminating power of this organ must necessarily be extremely valuable, not only to the physician but to the surgeon, whose judgment as to the advisability of operation must often depend largely upon the dependence he can place in the depurative action of the kidneys. An attempt has been made to determine what has been called the permeability of the kidneys, by examining the urine for various substances easy of chemical recognition, which when taken into the system are eliminated by the kidneys.

Undoubtedly the best of these means of investigation is that proposed by Achard and Castaigne, who in 1897 endeavored, by the injection of methyl blue into the subcutaneous cellular tissues and subsequent urinary examination, to determine the renal permeability. They found that in nephritis the elimination was retarded.

This observation was corroborated by others, but Bard observed that while this retardation was observable in some cases of nephritis, in others the appearance of the blue in the urine was precocious. It was also noted that the methyl blue was sometimes eliminated in the form of a leuko-derivative, called chromogene.

Chaufard called attention to the fact that the elimination sometimes appeared in the form of a continuous cycle — that is, there was a regular increase in the quantity observed until the maximum was reached, then a regular diminution. At other times elimination was continuous but polycyclic — that is, the blue was passed irregularly, sometimes in large quantities, sometimes in small quantities; finally it might be passed intermittently, the urine in the intervals containing none of the coloring matter. Achard and Castaigne note that the prolongation of the elimination is a sign of renal impermeability.

Albarran and Bernard (*Annales des Maladies des Organes Génito-Urinaires*, No. 4, 1899), noting that few authors have systematically studied the results to be obtained by this method in surgical affections, have carefully investigated five cases of pyonephrosis, two of hydronephrosis, two of renal tuberculosis, two of renal neoplasms, three of single kidneys left after ablation of the organs of the opposite side, nine cases of pyelonephritis, and one case of reflex polyuria.

The method of procedure was as follows: Fifteen minims of a five-per-cent solution of methyl blue was injected deep into the thigh or loin, the bladder having previously been emptied. Thirty minutes after injection the urine was collected in a glass, and this collection was repeated every half-hour until blue coloration was noted, from which period the collection was made every two hours until the elimination ceased. The blue was extracted by means of chloroform, after which the remaining liquid was examined for chromogene. Careful chemical examination of the urine was also made at the same time. In all cases of unilateral lesions the ureters were catheterized, and the urine from each kidney taken separately. The cases are reported in full with ingenious charts.

As a result of this study, Albarran and Bernard note that renal permeability is not a physiological entity, but that the kidney exerts an elective action, each substance possessing its own coefficient of elimination. The various substances used in experimental work have not always shown a concordant elimination. The methyl blue method is, within limits, capable of suggesting the existence of marked disturbances of the renal function; but the findings of this method in themselves are not safe indices as to either the nature or the degree of the renal lesions.

The most important factor in the elimination of methyl blue is its intensity. A permeable kidney lets coloring matter pass in large quantity; an impermeable kidney lets it pass in small quantity. This is the most reliable and important indication given by the method.

The delay in the appearance of the color is not to be trusted as a sign of kidney involvement. The elimination is commonly slow in a crippled kidney, but not always so.

The time during which elimination continues has some relation to the existence of compensating hypertrophy, either anatomical or histological. Thus there is a prolonged period of elimination in interstitial nephritis.

The progress of the elimination does not seem to give any clear indications. In pyelonephritis the elimination may take place in the form of chromogene, or it may be of methyl blue and chromogene disassociated, or these two elements may be eliminated together. This form of elimination suggests neither the nature nor the degree of the renal lesions, it simply indicates the existence of kidney complications.

In blocked kidney the elimination is delayed, lasts but a short time, and is very moderate in quantity. These departures from normal are proportionate to the kidney lesions.

In caseating renal tuberculosis the kidney may be perfectly impermeable to the blue. In such affections the kidney of the opposite side exhibits a precocious, prolonged, and abundant elimination. Renal neoplasms seem to have no effect on elimination.

The authors insist upon the importance of ureteral catheterization in all these studies, and hold that for the diagnosis and prognosis of unilateral surgical affections of the kidneys the method of Achard is of distinct service, but only when it is associated with ureter catheterization.

This communication is of very great value. The study has been so carefully conducted that it can be open only to the criticism that the conclusions are drawn from a somewhat limited number of cases. While disposing of the exaggerated claims at one time made for this method of diagnosis, it shows that it is by no means worthless; and in spite of recent papers upon the uselessness of the methyl blue injections as aids in the diagnosis of kidney affection, the conclusions of Albarran and Bernard are likely to be received as authoritative. They are unfortunately based upon a technique which is practicable to very few of our practitioners.

Reports on Therapeutic Progress

DISINFECTION OF THE MOUTH.

The *Scottish Medical Journal* for April, 1899, has in it a paper on this subject by MAYLARD. He says his object in writing this paper is to try and prove that the upper part of the alimentary canal, and more particularly the mouth and fauces, may prove a very ready receptacle for noxious material, which may subsequently find its way into the system. The facility with which septic or pathogenic substances will gain an entrance into the lymphatic channels will no doubt be very largely influenced by the condition of the lining mucous membrane; in other words, decayed teeth, ulcers, fissures, abrasions, or inflamed surfaces will very materially help to let infective material into the lymphatics.

If further reasons were required to support the belief that the mouth and fauces play an important rôle in certain diseases, it would be found in the usually accepted opinion that

diphtheria, scarlet fever, and quinsy have their initial symptoms in affections of the fauces. Dr. Maylard says he might add, for whatever value may be attached to it in this connection, a story which he recently heard told of a medical officer of health of one of the great provincial cities. He had been asked by two medical men to see a case which they strongly suspected was one of typhus. The medical officer verified the diagnosis without any doubt, and on leaving the patient commenced to spit, stating at the same time that it was his custom to continue to do so for the space of an hour after being in the presence of such a class of cases. This respected officer, whose peculiar and special function it was to prevent the spread of infection, and to adopt all such measures as should conduce to the welfare of the community whose general health formed his special department, evidently forgot that in ridding himself of the infective material, which he conceived it possible might get into his mouth, he was employing a method most conducive to the spread of the disease. Perhaps the simple precautionary measures to be presently described might suggest a better means of protecting the individual, while it would not endanger the community.

If, then, as there seems very little doubt, certain recognized specific conditions owe their origin to infection conveyed by or through the lining walls of the upper alimentary tract, may we not with some just reason conclude that even other diseases, the true source of which we cannot trace, may have their origin in the same way? Certainly there is no part of the whole body where infectious material, whether it be microbic or otherwise, can find such advantageous collecting and resting-places as is afforded by the many dental crevices or mucous membrane folds of the mouth and fauces; where, too, microorganisms can develop and multiply almost unimpeded. Unlike the stomach and intestines, where there is the gastric juice and the bile, the mouth possesses no similar secretion capable of neutralizing or inhibiting the effects of noxious material, for the saliva has probably no influence in this direction. That decaying teeth may prove a source of infection is probable, but they cannot be a very fertile source, when it is considered how many people have bad teeth, and what a comparatively few have enlargement of the cervical glands or other manifestations of disease. The probable reason of this exemption, no doubt, is that the cavity of a decayed tooth is such a hotbed of stinking saprophytic microbes that it proves more than the refined and sensitive cocci and bacilli of disease can stand. No tubercular bacilli could certainly thrive in such a soil, and that is probably the reason that the mouth is so remarkably free from local manifestations of tuberculosis, when, through the ingestion of uncooked milk and infected meats, so many opportunities are afforded for its being so.

If the above remarks have any cogency, they certainly point to the need of adopting some measures which will lessen the possibility of infection by the mouth. It may seem like descending to a very low and homely standard of precaution to touch upon such simple personal matters as the daily cleansing of the teeth with a brush. But there is a great deal more involved in that simple process than the mere supposed endeavor to keep the teeth white on their anterior or labial surface. The efficient scrubbing with a brush cleans out many of the little holes and corners in and between the teeth where infective material can lodge. The process of freely rinsing the mouth also serves to mechanically dislodge stagnant material in other parts. He would therefore not think lightly of this simple daily practice, which, however frequently adopted, should never be omitted at night. But he says he need hardly point out that by disinfection of the mouth he means a good deal more than this. When from any cause there is some lesion of the lining membrane of the mouth, either of the nature of a traumatic abrasion, an ulcer, an inflamed mucous surface, or a decayed tooth, the mouth should be freely rinsed with some antiseptic solution. He knows of none better than a weak solution of Condy's fluid; it is not distasteful, and a strong solution of it can be kept ready for dilution to the required strength. Doubtless those possessing sound and healthy constitutions, and not exposed to sources of infection, need but little to take protective precautions; but where the opposite conditions exist, he does not think too great care can be exercised. Wherever there is a known tubercular predisposition there should be certainly the utmost care taken both to cleanse and disinfect the mouth. When also there is exposure to certain infective diseases, more particularly to those of diphtheria, scarlet fever, and possibly typhus, the mouth should certainly be well disinfected after exposure to infection.

There is yet a somewhat different class of

cases, which manifests unmistakable evidence that the mouth is capable of supplying infectious material to distant parts. The author has frequently noticed—or, rather, he at one time did, for now he takes precautions to avoid it—that after exercising cervical glands under the strictest antiseptic precautions, and where previous to operation there had been no broken skin or sinus leading from the glands to the skin surface, infection of the wound took place if he attempted to completely close it. It was not the result of tension, but, he believes, the infection of the wound through the divided afferent lymphatics, which still were capable of conveying septic material from the mouth. To prevent this a portion of the wound should be stuffed with sterilized gauze, the remaining part being stitched, if deemed advisable. The mouth should be frequently rinsed with weak Condy's fluid, and always after food. How potent the cleansing properties of this fluid are he has frequently seen illustrated in cases where operations have been performed upon the mouth—such, for example, as excision of the tongue or parts of the jaw, where by its frequent and free use inflammation is checked and the parts kept, as we say, perfectly sweet.

ON THE PREVENTION OF VALVULAR DISEASE OF THE HEART.

The *Edinburgh Medical Journal* for April, 1899, contains an article by CATON upon this most important theme. He thinks that at the present time most members of our profession regard such effort as this as a hopeless task. In the spirit of the fatalist Moslem, they believe that if heart complication comes, it comes; it may possibly subside, though usually it does not, and they conceive themselves powerless to influence it. This, Dr. Caton says, was his belief and practice during the first dozen years of his professional career, but eighteen subsequent years of observation, directed especially to this question, have securely founded the conviction that much may be done to prevent and to arrest rheumatic endocarditis. So clearly has the good to be done become evident in his eyes, that he should now feel it a distinctly immoral action on his own part to omit certain precautions and certain methods of treatment.

1. *As Regards Methods of Prevention.*—Rheumatism, when once existing, seems to be aggravated by exposure to cold, and by checking (through chills) the profuse perspiration incident to the ailment; this is probably the opinion of most physicians. Caton keeps in his wards a stock of warm flannel garments expressly for the use of these cases. Every patient is clothed from head to foot in warm flannel (with sufficient changes of the same) during the whole of the acute period. He is kept in the most absolute rest in bed. He is usually treated with gentle cholagogues and with one of the ordinary salicylate preparations; the diet is a light and simple one, excluding for a considerable time all red meat. The heart is examined daily. If the pain fails to yield in any joint it is quickly dispelled by the use of one or two small blisters applied locally, and followed by poultices.

Any one who has tried Dr. Herbert Davies' method of treating rheumatism by small blisters to the joints knows how effective that treatment is.

Usually without this adjuvant, however, the pain and fever speedily subside, but to prevent relapse and endocardial trouble, Dr. Caton always maintains the remaining treatment, with the exception perhaps of slacking off the salicylate. The prolonged rest, warmth, and quiet seem to him very important as means for preventing mischief, for cardiac trouble not infrequently tends to come on late—even after all pyrexia is over. Under this treatment eighty-two or eighty-three per cent of his cases get well without any cardiac trouble at all. The remaining seventeen or eighteen per cent who are attacked form, he thinks, a low average.

2. *Efforts to Arrest Cardiac Valvular Mischief when it has Begun.*—If endocarditis shows itself by the development of an apex bruit, and by accentuation of the second sound at the pulmonary valve, or more rarely by a bruit at the aorta, the author adopts the measure which is found effective for a refractory joint, namely, the application of small blisters, along with other means. To all appearance the salicylates have little or no beneficial effect on cardiac rheumatism.

The reader may probably ask the question: Is there evidence that stimulation of the surface skin can in any way influence organs lying in the body cavity? All will agree that there can be no direct influence. If there is any effect at all it must be by a reflection through the spinal or sympathetic ganglia, via intercostal and visceral nerves. Is it possible that counter-irritation through these channels can do for the heart what it undoubtedly does for the joints? In reply Dr. Caton says

he can only give proof that certain nerve impulses do travel round by this route. Laborious laboratory experiments gave distinct evidence that stimulation of the thoracic integument produced certain changes in the viscera beneath. Space will not allow him to state details, but he says, in a paper read before the Physiological Society at Oxford, he showed that stimulation, either thermal, electrical, mechanical, or chemical, of the thoracic skin produced changes in the caliber of the arterioles of the lung, also that similar stimulation modified the electrical potential of the intestinal wall, as shown by the galvanometer. These experiments did not prove any therapeutic influence—it would scarcely be possible to prove that by such a method—but they prove that an influence was transmitted round by the nerve communications extending between the surface skin and the organs within. By analogy it may fairly be assumed that likewise a trophic effect, a stimulation of nutritive processes, may be expected to follow such stimulation in an organ whose nutrition was perverted. Familiar examples of such an action might be quoted—*e.g.*, what obstetrician does not know the effect of a sudden dash of cold water on the thoracic skin of a new-born child in quickening respiration? In a faint, is not a like application of avail in stimulating the heart?

The treatment Dr. Caton is advocating is in part founded upon this theory. As soon as a bruit is perceptible—in fact, as soon even as what the French call *assourdissement*, the muffling of the first sound at the apex, occurs, which is the usual precursor of the bruit—he applies in the course of the third, fourth, fifth, or sixth intercostal nerve small blisters not much larger than a shilling, in succession, one at a time. They give little pain or inconvenience. The patient is kept in bed, absolutely recumbent and as quiet as possible, for several weeks. It is important in his judgment to keep the heart's action as quiet as possible. Moreover, he gives in addition to the salicylates eight- or ten-grain doses of sodium or potassium iodide thrice daily. This is given in the hope that it may help to absorb inflammatory products.

ON THE VALUE OF MILK WHEY IN INFANT FEEDING.

Ashby writes on this topic in the *Edinburgh Medical Journal* for April, 1899.

Whey has been used, time out of mind, as a substitute for whole milk for the infant, when digestion was at a low ebb. It must early have been recognized that cow's milk curdled in the stomach into masses of sour-smelling curd, upon which the digestive juices were apt to spend themselves in vain, and these were either ejected by vomiting or passed in the feces. Under these circumstances whey was a useful temporary resort, the vomiting or diarrhea ceased, and the digestive powers might be coaxed back into their normal condition.

Dr. Ashby is inclined to think that, at the present time, the value of whey for infant feeding is often overlooked or forgotten, a result no doubt due to the fact that so many tinned or bottled infants' foods—of the "perfect substitute for mother's milk" sort—are extensively advertised by their makers, and our more homely milk modifications have been thrown into the shade. But surely no sane individual can ever claim that milk which has been dried, "tinned," and stocked, can ever again be made to yield a fluid that can compare with fresh milk or milk whey as a food.

Some years ago Frankland suggested whey as a diluent for milk, and gave directions for the preparation of "humanized" milk—*i.e.*, a mixture which resembles woman's milk in the percentage of its constituents—by mixing together certain proportions of cream and whey. Since then "humanized" milk has been manufactured on a large scale by mixing cream, milk, and sugar-water in various proportions, sterilizing, and sending out in bottles. Dr. Ashby doubts very much if the manufactured article, which is mostly overheated to make it keep good for months, is as good a food as can be made at home by mixing cream, or milk and whey, and using it fresh. There are comparatively few of us within easy reach of a Walker-Gordon laboratory, where we can have any formula for a milk food made up and delivered daily with an exactness we cannot imitate in the household; but we have to depend upon home-made modifications. The temptation, no doubt, is great to fall back upon a manufactured food; it is so much easier to take a spoonful of powder out of a bottle or tin and stir it up with warm water, when the infant has to be fed, than to set aside milk to cream and to prepare the whey. But it is worth all the trouble and time expended on its preparation.

When "rennin" or essence of rennet is added to warm milk, the proteid in the milk—namely, caseinogen—is split up into insoluble proteid casein and "whey proteid," the latter being unaltered either by "rennin"

or heat. The casein is precipitated in company with the fat, leaving the whey proteid, lactalbumin, lactose, and salts in solution. When whey is made, as in cheese-making, it is desirable that it should contain as little fat as possible, as the fat is wanted to enrich the cheese. The following is the percentage composition of whey as given by several authorities:

	Proteids.	Fat.	Lactose.	Salts.	Water.
Koenig	.85	.23	4.71	.65	93.24
Bauer	.82	.24	4.65	.65	93.3
Benger	.8	.16	....	.65	.....

But when whey is required as a food, it is clearly desirable that at least some of the fat should be retained in the whey, and not be rejected with the curd. This may be effected by a thorough agitation of the curd before straining. Perhaps the most ready way of preparing whey for infant feeding is to use Hawksley's sterilizing apparatus, as it is provided with a thermometer, and consequently the temperature can be regulated. Thirty ounces of good fresh milk is placed in the bottle provided, and the heat raised to 104° F.; add two teaspoonfuls of pepsin cordial, and set aside for a few minutes. When the curdling has taken place, thoroughly break up the curd by stirring and shaking the bottle; then strain through fine muslin or a colander. In this way 22 or 23 ounces of an opalescent fluid is obtained, which should be heated to 160° F. for twenty minutes, in order to destroy the rennin. It may require a further straining, as more curd is apt to form on heating. Mr. F. Baden Benger, F.C.S., was good enough to make some analyses of whey prepared in this way. He found on an average that the whey contained 97 per cent of proteids, 2 per cent of fat, and 6.1 per cent of salts, the amount of fat being much larger than in whey prepared by simply draining the whey off the curd without agitation. Centrifugalizing, in Gerber's acid butyrometer, the whey prepared in the wards of the Children's Hospital, he found an average of 1.75 to 2 per cent of fat.

Whey prepared in this way, with or without an addition of two or three drachms of milk-sugar to the pint, makes a useful food for newly-born infants who have to be artificially fed, or for infants who suffer from chronic vomiting, or have liquid, green, and curdy stools. They will gain weight and be more comfortable than when taking diluted milk. A weak "humanized" milk may be made by adding 10 ounces of fresh milk to 20 ounces of sterilized whey, and adding ½ ounce of milk-sugar. To make a "humanized" milk more rich in fat, use "top-milk" in the same proportion. Let a quart of fresh milk stand in a covered glass jar in a cold place for four or five hours; remove the upper 10 ounces by skimming, and add this to 20 ounces of sterilized whey with ½ ounce of milk-sugar.

If these mixtures are carefully made according to directions, perfectly fresh milk of a good average quality being used, the analysis will work out something like the following; but exactness cannot be expected, inasmuch as milk varies in the amount of fat it contains and the time it takes to cream:

	Proteids.	Fat.	Lactose.	Salts.
Human milk, average.	1.75	3.5	6	.3
Whey	.8	2	4.5	.6
Milk, 10 oz. Whey, 20 oz. Lactose, ½ oz.	1.75	2.5	6	.6
Cream (8%), 10 oz. Whey, 20 oz. Lactose, ½ oz. ...	1.75	4	6	.6

It is always well to add a grain or two of bicarbonate of sodium to render the mixtures neutral or slightly alkaline.

It is often convenient to give dyspeptic infants whey at first, or even dilute the whey with a solution of maltose or barley-water, as such infants cannot always digest as much as two per cent of fat in their food. As they improve, add milk to the whey, or "top-milk," as their digestive powers gain strength.

It may be asked, what advantage has whey over a solution of lactose as a diluent? It certainly contains "antiscorbutic" properties, which a solution of milk-sugar does not, and, moreover, it contains soluble proteids and a certain amount of fat. Dr. Ashby has frequently found infants improve and gain in weight after whey has been substituted for sugar-water or barley-water as a diluent for milk, and his experience is strongly in its favor. But more than the average intelligence is wanted in the nursery to carry out details.

FEVERS IN CHILDREN; THEIR SIGNIFICANCE, GENERAL DIAGNOSTIC VALUE, AND ANTIPYRETIC TREATMENT.

The *Archives of Pediatrics* for April, 1899, has in it an article by S. S. ADAMS upon this

subject which is of interest. In speaking of the treatment of fevers he tells us that this may be done by the administration of internal antipyretics, in the use of which great harm often occurs. It is true that by a good dose of antipyrin, acetanilid, or phenacetine, we can reduce the temperature and make the child apparently better. The parents are satisfied, and we may think we have accomplished something; but what is the result? The effect of internal antipyretics is transitory, and consequently we must resort to one of two things—either allow the temperature to return to its former height, or reduce it by the further administration of powerful antipyretics. In this way we not only confuse the diagnosis, but do much more, for such drugs exert a violent and paralyzing effect on the heart.

Dr. Adams says he does not mean to decry the judicious administration of them, but he believes that antipyrin, in the hands of even the most skilful, is a most dangerous drug. He has seen the ill effects of it, and the apparent good effects. He has seen a child wildly delirious from croupous pneumonia made rational by a dose of antipyrin, so that it could sit up in bed and chat with its parents, but he has seen the same child relapse into a condition of high temperature within twenty-four hours because the heart had never regained the tonicity which it had had prior to the violent reduction of the temperature by antipyrin. His experience with acetanilid is similar. With phenacetine he has had a little more favorable results. Of the internal antipyretics it is one of the safest, but it should be given judiciously, and only in those cases in which we require a rapid reduction of the temperature. Its administration should usually be accompanied by free stimulation. These antipyretics act in two ways—*i.e.*, they lessen heat production and increase heat dissipation; and we must take this into consideration in determining the nature of the antipyretic to be given.

The second method of reducing temperature is by the external application of cold. This method is not only the most beneficial, but is the most stimulating to the various systems. It may be done by means of the cold pack, by the application of the ice-cap to the head, or of the ice-coil to the abdomen; but far beyond the beneficial effects of the wet pack and these other methods, the application of the Brand method, pure and simple, is unquestionably the best means of reducing fever, no matter what pathological condition exists. Dr. Adams says this without any hesitancy. He has no compunction whatever in taking from its bed a child having one of the infectious diseases, with a high temperature and accompanying nervous excitement, and placing it in a bath under proper conditions, for he believes that he is not only reducing the temperature but is placing the system in far better condition than prior to the administration of the bath. The Brand method must be carried out in every detail. It is not sufficient to take the little one out of bed and place it in a bath-tub. The bath-tub should be brought to the patient, and the latter should be gently lifted out of bed and placed in the tub, and then the manipulations should be conducted during the bath, and the necessary stimulation given. The result is that the reduction of the temperature is effected with perfect safety.

Dr. Adams has demonstrated to his class in the Georgetown University a case like the following: A child of eight years who was wildly delirious with typhoid fever was placed in a tub containing water at a temperature of 90° F., and kept in this bath for fifteen minutes. Enough heat was dissipated from that child to raise thirty gallons of water 4° F. This shows the immense amount of heat abstracted. The child, who was wildly delirious at the time the bath was begun, became conscious and rational; the pulse increased in force. Quite commonly the temperature rises after three or four hours to its former height, when the bath can be repeated.

In connection with the treatment of acute infectious diseases, Dr. Adams is repeatedly asked why we do not see so frequently the complications and sequelæ commonly observed in former years. When he began to practice medicine, as soon as a child was attacked by one of the eruptive diseases, he was isolated, and every crack in the windows of the sick-room was sealed. A blanket was placed over every door but one. The child remained in that vitiated atmosphere from the beginning to the end of the disease, with the result that there was a continual inhalation of a vitiated and germ-laden air. Twenty years ago to give a drink in such a case was equivalent to the physician receiving his passport, so far as that household was concerned. In private practice the complications of scarlet fever, and the post-scarlatinal conditions, are now much less frequently seen than they were ten or fifteen years ago. It can be attributed not only to

the freer use of water and better ventilation of the sick-room, but also to the practice of placing such fever patients in baths when the temperature requires reduction. Such treatment favors the elimination of the toxic material, and as a result convalescence is more rapid and smooth, and the complications and sequelæ are avoided.

The temperature of the bath varies considerably in different cases. With a temperature of 105° we should be very careful how we reduce the temperature of the bath below 95°, the books to the contrary notwithstanding. If we can accomplish what we desire by a warmer bath, and with less inconvenience and discomfort, why should we use a colder one? Some advise a bath at 60° or 55° F., and some even a bath at 50° F. Dr. Adams claims that just as good results follow the use of a bath having a temperature of 95° to 100°, provided a cold cloth is applied meanwhile to the head. The ordinary duration of a bath is ten minutes, and during this time the patient should be subjected to continuous friction. He says he should hesitate a long time before giving his consent to a fever patient receiving a bath at 55°. The city water probably has a temperature of about 50°, so that the effect of such a bath on a normal temperature can be readily tested by jumping out of bed into water just drawn from the faucet. He is confident that if this is tried a verdict will be rendered in accordance with what he has said.

TREATMENT OF CHOREA BY MASSIVE DOSES OF ARSENIC.

In a Paris thesis of July 19, 1898, DEL POZO records thirty cases of chorea treated by massive doses of arsenic. He considers that these massive doses are far superior to treatment by antipyrin as it is commonly employed, and states that there are two ways in which arsenic may be administered, namely, in small doses very gradually increased, and in large, massive doses rapidly increased up to the point of intolerance, or in other words, until the gastrointestinal canal of the patient rebels, as manifested by vomiting and diarrhea. As soon as these symptoms are developed the dose is cut down day by day until one is obtained which the patient can bear. He asserts that such a treatment usually produces cure within nine days, and that accident from this method is rarely met with. Four cases of arsenical neuritis are reported. Arsenical fever is rare; sometimes arsenical pigmentation occurs, but this speedily passes away as soon as the drug is stopped. — *Revue de Thérapeutique Médico-Chirurgical*, January, 1899.

TREATMENT OF ECZEMA IN INFANTS AND CHILDREN.

In the *New York Medical Journal* of April 1, 1899, ALLEN expresses the belief that the treatment of infantile eczema is almost exclusively local. The health of these children is usually about the average of those of equal age and social station. In nurslings the mother's breast is taken regularly, or more often irregularly; but aside from this, as we fail to discover vices of table or vicious habits, we cannot fall back upon the much-abused *excessus in vino et venere* as an excuse for not effecting a rapid cure.

For the scalp affection, and for dry, scaly patches elsewhere, resorcin is useful, as it is in the seborrheal forms of eczema in the adult; it is here equally efficacious, but must be used in much decreased strength, as in the following prescription:

℞ Resorcin, 0.5–1.0;
Washed sulphur, 2.0–4.0;
Lanolin, 5.0–10.0;
Lard, ad 100.0.

As an ointment base nothing seems very much superior to the long-tried zinc oxide ointment.

In almost all eczemas about the anogenital and groin region during the past year Allen has been using a three-per-cent watery solution of methylene blue, and can say without hesitation that here, as well as in erythema intertrigo in infants, it has given him most satisfactory results. The drug is somewhat analgesic, is soothing to the irritated, raw, and sometimes ulcerated surfaces, it forms a protective coating, is antiseptic, and from its discoloration leaves no doubt as to the time when a new coat of the solution is required.

In order to keep the parts free from excreta and urine Dr. Allen instructs the mother or nurse to place the infant regularly at each time of feeding, or every two hours, upon a small vessel, with the object of teaching it thus early in life not to urinate in the diaper. If the stream does not follow upon contact of the buttocks with the cold rim of the vessel, the finger-nail or any sharp-pointed object drawn from the bladder region to the umbilicus may succeed in inducing urination. In male children he has frequently accomplished this object by

painting the glans penis with a drop of cold methylene solution. These methods are, at times, useful in securing a specimen of the infant's urine for analysis, and are much superior to passing a catheter or wringing out a wet diaper.

Methylene blue he has used extensively in a great variety of eczemas, and he believes it a valuable addition to the means of cure. Upon the exposed parts, however, the color is, in most instances, an objection; and in general the staining of the clothing might be a drawback. In point of fact, the parents are so well satisfied with the results that never has this been raised as a serious objection in any case so treated.

The form of seborrheal eczema is more rarely pityriasic, with dry desquamation and slight infiltration of the integument. Here mild salicylic and ichthyol applications are of use, as for example:

℞ Salicylic acid, 0.2–0.5;
Powdered zinc oxide, 10.0;
Powdered starch, 15.0;
Compound tincture of benzoin, 10.0;
Lard, ad 100.0.
M.

Naturally in this, as in any other forms, if any internal derangement is made out, it is to be combated by internal remedies. If there is anemia, and especially if the secretions are inactive, or there is at the same time intestinal fermentation, the following tablet can be given with decided advantage:

℞ Calomel, 1-10 grain;
Saccharated iron carbonate, ½ grain;
Powdered white sugar, 2 grains.
M. S.: One crushed in milk twice a day.

In older children:

℞ Iron peptonate, 40 grains;
Elixir of calisaya, 2 ounces.
M. S.: A teaspoonful three times a day.

An occasional larger dose of calomel, a sixth to a fourth of a grain, once a week, is often of benefit.

If the mother of the nursling is a beer drinker or a tea drinker, or if she is in a state of ill health, or suffering from habitual constipation, her condition is to be looked after for the benefit of the little patient.

In the impetiginous form, if the crusts are thick and not readily removed by oil or soft soap, Dr. Allen often orders a favorite cataplasm of the French made with potato flour (*fécule de pomme de terre*), but he usually orders it made with some antiseptic, such as mild bichloride, carbolic acid, or lysol solution, the latter having the advantage of being somewhat antipruritic.

In the more chronic, *i.e.*, persistent, forms of eruption in older children, and when there are extensive scaly plaques upon the back of the neck, or involving the margins of the scalp regions behind the ears, he uses a stiff, paste-like ointment, as in the formula:

℞ Resorcin, 1.0;
Tar, 2.0;
Prepared zinc carbonate,
Powdered zinc oxide, āā 10.0;
Lanolin, 50.0;
Lard, ad 100.0.
M.

This is an intermediate prescription between stiff pastes and thin ointments without adhesive properties, and has an advantage over ordinary pastes made with starch in that in the latter, when the fat is absorbed by the crusts, the skin, and the dressings, there is left behind a residue of dry crumbling or caking material, which is apt to act more or less as an irritant, and thus in a measure defeat one of the very objects for which it was employed.

When an impetiginous eczema is impetiginous because it has been inoculated with the virus of true impetigo, ammoniated mercury ointment, so useful in the latter, is, in modified strength, here likewise efficacious.

The neurotic, nervous, or reflex eczemas, usually of symmetrical distribution, occurring in young children who are florid, fat, and in fit condition, and in whom no error of diet may be discoverable, is an excessively pruriginous affection, requiring primarily applications which will allay the itching and prevent the scratching which is so pronounced an element in the dissemination and aggravation of the condition. Although attributed to the irritation of cutting the gums, it is seen not infrequently in those who have not yet reached the period of eruption of the teeth. Intestinal irritation may be found, especially if the child has reached the age at which certain liberties of diet are allowed. In the majority of cases reliance must be placed almost wholly upon external measures, and one of the most difficult problems to solve is that of retention of applications *in situ*, and the prevention of injurious scratching and rubbing, especially at night. Dr. Allen has devised for the purpose of retaining dressings upon the head and face a little cap with a mask attached. It is made from a single piece, so that by removing the stitches or safety-pins from a single seam it

can be used as a pattern from which new caps may be cut out. He says he finds this a necessity, since mothers and nurses, however willing, are often unable to manufacture efficient head dressings. Sheet lint or linen is spread with the particular ointment to be applied, in strips of requisite size for the various regions, and over this is placed and securely fastened the cap and mask as devised. Besides this it is necessary to secure the hands to the side by means of safety-pins, attaching the sleeve of the night-dress to the diaper. Whatever rubbing against the pillow is indulged in can then do little more than rub in the ointment applied.

THE VALUE OF STRYCHNINE IN PREGNANT WOMEN.

TOLMATSCHEFF has recorded the results obtained by him in the administration of strychnine in the dose of $\frac{1}{40}$ or $\frac{1}{50}$ grain twice a day to pregnant women, the drug being given after meals for a period varying from six to ten weeks. He states as a result of his studies in twelve cases that strychnine is a valuable remedy to prevent the atonic constipation of pregnancy, and also that he regards it as being an excellent preventive against feeble uterine contractions. He failed to see any instances in which the treatment seemed to produce disadvantageous results. —*Revue de Thérapeutique Médico-Chirurgical*, January, 1899.

IS PETROLEUM EMULSION OF ANY NUTRITIVE VALUE?

A reply to this question is made by HUTCHISON in the *British Medical Journal* of March 25, 1899. He says that there can be no doubt that in recent years petroleum emulsion has crept into use as a substitute for cod liver oil in the case of patients who are unable to take the latter. Now, petroleum belongs to the paraffin series—that is to say, to a set of substances which are characterized by the great opposition which they offer to chemical change. One would not, therefore, expect on *a priori* grounds that petroleum would be capable of assimilation in the body. In order to put the matter to practical test, Dr. Hutchison recently carried out some experiments on the absorption of petroleum emulsion by man, the result of which entirely confirmed the suspicions which he had entertained on chemical grounds, and led to the conviction that petroleum is of absolutely no use at all as a substitute for cod-liver oil. It is the object of his paper to describe these experiments and the conclusions to be drawn from them.

He employed a well known and widely advertised emulsion of exceedingly pure petroleum. It was found that thirty cubic centimeters of it, when mixed with charcoal and evaporated to dryness, yielded on extraction with ether seven grammes of semifluid petroleum; thirty cubic centimeters represents about three dessertspoonfuls, which is the usual daily dose of the emulsion in question. He next proceeded to administer this dose to a healthy man with the object of ascertaining how much petroleum one could recover from the feces. In the first experiment the subject was placed on a constant diet containing a moderate amount of fat. The feces were collected daily, mixed with animal charcoal, and evaporated to dryness. The product was then extracted with ether in a Soxhlet's apparatus and the extract weighed. The results are contained in the following table:

FIRST EXPERIMENT.

	Ether extract. Gm.
Total feces of three days without petroleum ...	7.1
Total feces of three days on 30 Cc. petroleum emulsion per day	32.7
Difference	25.6

That is to say, the adminstration of three dessertspoonfuls of petroleum emulsion daily had increased the ether extract of three days' feces by 25.6 grammes, although the diet was exactly the same as on the three previous days. The appearance of the extract was also quite different for the two periods. That of the first three days was solid and waxy, while that of the three petroleum days was semifluid in consistence.

In order to recover petroleum free from fat the ether extract was saponified by boiling with alcoholic potash solution. The residue was diluted with water, shaken up with ether in a separate funnel, the ether evaporated, and the residue weighed. The total 32.7 grammes yielded on this treatment 21.6 grammes of semifluid petroleum. Now seven grammes of petroleum had been administered on each day, so that 21 grammes had been given, and 21.6 was recovered. The apparent excess found was probably due to the presence of traces of soaps.

In the second experiment no attempt was made to regulate the diet. Thirty cubic centimeters of the emulsion was administered on one day, and the feces of the three suc-

ceeding days extracted with ether, and the extract saponified as above.

SECOND EXPERIMENT.

	Ether extract. Gm.
First day (no petroleum)	3.5
Second day (no petroleum)	4.1
Third day (30 Cc. emulsion)	4.3
Fourth day (no petroleum)	7.6
Fifth day (no petroleum)	6.9

On saponification, the extract of the fourth day yielded 4.5 grammes of petroleum. The extracts of the third and fifth days yielded together 2.6 grammes. The total amount of petroleum recovered was thus 7.1 grammes, while the amount contained in the 30 cubic centimeters of emulsion given was seven grammes. The results of this experiment entirely confirm those of the first.

From these experiments it may reasonably be concluded that petroleum is not absorbed in the human intestine, and Dr. Hutchison considers, therefore, that it can in no wise be regarded as a food or a substitute for cod-liver oil. Nor does he suppose that petroleum has any remote action, say, upon the lungs. It is conceivable that if crude petroleum were employed, some of the volatile substances contained in it might enter the blood and be excreted by the mucous membrane of the air-passages, but the purer the petroleum used the less chance is there of any such occurrence.

Whether petroleum may have any value as a local application in intestinal diseases must be left undecided. One can imagine that there may be conditions of the intestinal mucous membrane in which the administration of petroleum might be of value in the same way as the application of vaselin to the skin, by forming a sort of pellicle on the intestinal surface. In one sense, also, it may be regarded as an artificial intestinal mucus, and it might in that way have some value in certain forms of constipation. It is also worth considering whether it might not be a useful vehicle for the administration of intestinal antiseptics. Carbolic acid dissolves in it, and if the petroleum prevented the absorption of the acid it would also bring the latter into intimate mixture with the intestinal contents, and act as a sort of internal "carbolic vaselin;" but that part of the subject would require special investigation by experiment. Dr. Hutchison's only object at present is to point out that petroleum, even when given in the form of emulsion, is not absorbed at all, and as a consequence can have no nutritive value.

PROLONGED CHLORAL SLEEP IN THE TREATMENT OF CHOREA.

The *Medical Record* of April 1, 1899, contains an article by LICHTSCHEIN on this subject. Among the many drugs that have been employed, undoubtedly the most important is arsenic in the form recommended by Romberg. Salicylate of physostigmine, enormous doses of carbonate of iron, chloroform, narcotics, and many other drugs, as well as cold-water treatment, galvanization of the brain and spine, and change of location, have been used with more or less good results. Then, in acute chorea, hygienic measures and changed surroundings, with one or several drugs in combination, will cause a cessation of the disease. But in a small minority of cases all those means mentioned above do not effect a cure, and the disease lasts for years. The patients become exhausted, anemic, and arrested in their physical development, and even their intelligence suffers. What shall we do with these cases?

In the treatment of neurasthenic patients Dr. Lichtschein has for some years employed the rest cure of Weir Mitchell, enforced with the administration of chloral hydrate in doses sufficient to keep them in a somnolent condition. During the treatment of these patients he has observed that their appetite increases, digestion and assimilation improve, and as there is no other kind of energy expended, a rapid gain in weight and strength, and consequently a remarkable abating of nervousness and irritability, result. Furthermore, taking into consideration that choreic movements generally cease during sleep, and that for some time after a night's rest the choreic movements are weaker, and grow stronger only as the day grows older, he came to the following conclusions:

Given a long rest during sleep, and the time of so resting being employed in rapidly strengthening the body, we might have a twofold result: First, the nutrition of the nervous system being improved, the premature discharges of nerve impulses to the muscles may cease; and secondly, the impressions in the nerve centers caused by the centripetal impulses emanating from the agitated muscles may grow weaker and weaker the longer those twitching muscles are at rest, and finally disappear. During sleep, be it natural or artificial, the whole brain and nervous system, with the exception of those parts that superintend the vegetal functions of the body, are at rest. There is no part that need expend more energy than

another; therefore an equalization of vital force in the nerve centers is possible that could not take place if the patient was awake. Though he is in bed and perfectly isolated, he cannot help performing mental work, as thinking, hearing, seeing, etc., which requires the expenditure of as much cell energy as the physical work does, and perhaps more. And now, if during this nearly perfect rest we are able to furnish the means wherewith this equalization of cell energy can be effected —nay, more, if a reserve force can be accumulated—we have accomplished our purpose.

And here, again, sleep is preferable to the waking condition. When the patient is awake we have to contend against his tastes and his discriminations against such foods as we think it necessary to give him, and the digestion in chorea being bad, we must and have to abstain absolutely from crowding food into his stomach. During a somnolent condition caused by chloral we avoid these obstacles; and it does seem as if the chloral acted as an antifermentative and appetite-exciting remedy, for the patients under its continued influence crave for food and assimilate it more readily.

Dr. Lichtschein has observed in the treatment of neurasthenic patients with whom he first employed the prolonged sleep by means of chloral hydrate, that small doses of chloral—five to ten grains every three or four hours—had no effect, did not diminish the restlessness, nor produce sleep. He had to resort to twice, nay, three times, as large doses to have the desired effect, viz , a deeply somnolent condition. It seems that neurasthenic, and to a greater extent choreic, patients need more chloral to become quiet and sleepy than those suffering from other diseases. Still, in giving chloral one has to be very cautious in determining the necessary quantities to be used. It is well to give one single dose, say ten to fifteen grains, first, and if sleep is produced to determine from the depth and duration of the sleep the dose of the drug and the time at which it is to be repeated. If the first dose does not cause sleep, increase the dose until sleep is produced and determine as above. The sleep should be superficial enough to allow patients to respond when loudly spoken to, and still be sufficiently deep to keep them quiet.

One would raise the objection that chloral is a dangerous remedy, is a heart depressor, and that its continued use would weaken the heart; but by giving at the same time small doses of strychnine and watching the pulse and respiration, and immediately reducing the dose of the chloral if the former is greatly accelerated and the latter has become less frequent, the author has, in the cases of neurasthenia treated by this method, never observed any bad effects whatsoever, either during the sleep or after the patients were awake. He has treated with this prolonged sleep three cases of chronic chorea, in all with excellent results.

NEPHRITIS COMPLICATING ACUTE OR SUBACUTE GASTROENTERITIS OF INFANTS AND CHILDREN; ITS TREATMENT.

KOPLIK states in the *Medical Record* of April 1, 1899, that the treatment and management of these cases is practically the management of all severe forms of gastro-enteritis. We should never lose sight of the fact that opium in any form, mercury, and the coal-tar products, designed to disinfect the intestinal tract, like benzol, salol, carbolic acid, and guaiacol, are ruinous; they only tend to deepen the toxemia, and by irritating the kidney intensify the functional disturbance in that organ.

In all these cases the suppression of urine, the rapid emaciation, are manifestly the result of the withdrawal from the tissues and blood of a vast amount of the fluid elements. It is granted that the irritation of the kidney elements is due to infectious material circulating in the blood, but in these cases also the concentration of the toxins, and thereby the total suppression of the urine, may be favored by their presence in concentration due to the great loss by the system of its watery elements. The full and free supply of water through all the possible channels is one of the greatest means of placing these cases on a convalescent basis.

Stomach washings should be daily employed, and also rectal irrigations. In the latter Dr. Koplik has employed Cantani's physiological solution (sterilized water 1 quart, sodium chloride 1 drachm, sodium carbonate 45 grains, at a temperature of 38° to 40° C.). This solution was also made use of in hypodermoclysis. For making a rectal irrigation in the infant in the severe cases cited, he employed an adult size stiff-rubber rectal tube. A small catheter is worse than useless. It doubles up on introduction in the lower rectum. The child is completely undressed, shielded with a blanket from ex-

posure, and the buttocks are raised high. The rectal tube is introduced high up the gut, and a quart or more of the above solution is thrown into the rectum and allowed to flow out at intervals, so as to clear out what little fecal matter there may be in the lower gut. The irrigation is so managed that a large amount of fluid is left in the gut after the withdrawal of the tube; in other words, we make an effective enteroclysis. We do this daily. In the very severe cases he introduces daily 200 cubic centimeters or more of sterilized physiological salt solution under the skin of the abdomen (hypodermoclysis). The medical treatment is confined in these cases to the exhibition by the stomach of bismuth in large doses.

In all cases the milk (artificial or breast) is suspended, and the child fed on albumen-water or beef juice mixed with sterilized barley-water. Inasmuch as the barley may in cases be moldy, Dr. Koplik has lately prohibited its use, as it seemed in some cases to aggravate symptoms. The so-called acorn cocoa has been a useful food substitute in many cases.

If one stops to study the above, he will see that the treatment of severe gastroenteritis has been only outlined, but in so doing a defense has been found for the application of these measures in the state of the kidneys, and it has also been shown how the use of drugs formerly much in vogue must finally injure these patients. Take, for example, the simple use of opium. Dr. Koplik has always warned against its use in any form in these cases. The physician would defend its use on the ground that it quiets the patient. This is so, but the quiet thus produced is a stupor analogous to the stupor in cases of uremia in which too much morphine has been made use of. Such a case he had occasion to see lately in consultation. He warned against opium. It was used, and the babe never roused itself from the stupor which he believes was brought on by its use, and which was intensified on account of the vulnerable state of the kidneys.

Sublimate also, even in smallest doses, is a dangerous drug in these cases of gastroenteritis, as is also calomel in repeated doses of one-tenth grain, such a favorite with many physicians. In closing Koplik speaks of the beneficial effects of warm baths with massage in the bath, and the cautious use of strychnine to stimulate the heart. He does not use alcohol in these cases.

In thus evolving the treatment for these severe forms of gastroenteritis, he has shown how step by step scientific medicine has advanced to protect the little patients from the injurious effects of the former indiscriminate and blind use of drugs of all kinds and most diverse action.

THE TREATMENT OF EXCESSIVE SWEATING.

An article on this subject is published by WEBER in the *Journal des Praticiens* of March 11, 1899. He points out that in certain conditions where there is localized sweating or hyperhydrosis, that it is chiefly a neurotic condition and is to be treated usually by the administration of bromides, antispasmodics, and, more important than all, cold douches, which will improve the nutrition of the nerves and vessels in the part affected. Of course, where alcohol, tobacco, cocaine, or similar substances are used to excess, these must be withdrawn.

In the sweating which accompanies general diseases such as the various fevers, the following treatment may be instituted:

> Agaric, 45 grains;
> Extract of opium, 7 grains.
> Make into 40 pills and take two or three at night.

Or, in other cases, pills of agaracin, in the dose of one-tenth to one-fourth grain, may be given. In other instances tribasic phosphate of lime in the dose of one drachm is useful. In still others camphoric acid in the dose of twenty to forty grains, given in powder, in capsules, in konseal, or dissolved in brandy or whiskey. The other remedies which are not to be forgotten in this condition for obstinate cases are ergot, picrotoxin, and sulphonal.

Locally lotions of tannin one per cent, alum ten per cent, may be applied, or a powder may be put up for internal use as follows:

> Pulverized talc, 3 ounces;
> Salicylic acid, 20 grains.

Local sweating of the feet or hands may be controlled by applying three times a day the following formula:

> Borax, ½ ounce;
> Salicylic acid, ½ ounce;
> Boric acid, 1 drachm;
> Glycerin,
> Dilute alcohol, of each 2 ounces.

In cases of fetid sweating of the feet the following may be used:

Pulverized talc,
Subnitrate of bismuth, of each 1½ ounces;
Permanganate of potassium, ¼ grain;
Salicylate of sodium, 30 grains.
Apply over the feet and dust between the toes.

Or,

Powdered alum, 45 parts;
Salicylic acid, 5 parts.

It is hardly necessary to add that in the profuse sweating which occurs at the crisis in such diseases as pneumonia we should abstain from interfering with it. Only when the sweating becomes more or less chronic should it be arrested.

DIABETES MELLITUS.

GRAHAM BROWN, in the *Scottish Medical Journal* for March, 1899, tells us that it is a matter of considerable importance that a man suffering from diabetes should lead, as far as may be, an easy life free from worries. If possible, he should give up any occupation which involves mental anxiety, as he is as a rule quite unfit to stand any strain of that kind, and such anxiety will tend to hasten the progress of the disease. The skin, as has already been said, is very dry, and it is of some importance therefore to excite its functions either by means of tepid baths, or, if the diabetic condition is not a severe one, by mild Turkish baths. He should wear flannel or silk next the skin, and he should take as much exercise in the open air as he can stand without undue fatigue.

The most important point, however, in regard to treatment is that of diet. The object, of course, is to reduce the carbohydrates as far as may be. It is not possible to do this absolutely for any length of time, but by careful selection of the food the amount of starch taken may be reduced to a very small quantity. It is, of course, necessary that one should in each case write out and give to the patient careful directions as to diet, and one should remember that after a time diabetic diet becomes very distasteful, and it is of great importance to vary the food as much as possible, and by means of alterations in the method of cooking, to tempt the palate. The following will give one an idea of the lines on which one should proceed in this matter. Of solids, the patient may take meat of any kind—fresh, salted, or even smoked—except liver; fish of all kinds, including shell-fish; poultry, game, rabbits, eggs, butter, cheese, lettuce, tomatoes, asparagus, watercress, celery, cucumber, mushrooms, and the various kinds of diabetic bread, provided these are reasonably free from starch. In small quantities the patient may take lemons, oranges (if not sweet), currants, and cranberries. Subject to the reservation to be mentioned presently, all farinaceous preparations should be forbidden, also bread, rice, tapioca, semolina, arrowroot, and the like. Peaches, turnips, asparagus, vegetable marrow, beet-root, green peas, cauliflower, all sweet fruits, and sugar in any form are likewise inadmissible.

Of liquids the patient may take water, aerated water, tea, coffee, soups which have not been thickened with farinaceous material, and, if one gives a stimulant, a little light claret or a very little whiskey may be allowed. Milk may be also taken, but only in comparatively small quantity. The consumption of sweet wines and liqueurs, of cocoa and chocolates, and of beers and ales should be forbidden. The great difficulty is as regards bread, for which diabetic patients have an exceeding fondness. Diabetic bread is not very pleasant as an article of food, and sometimes we are obliged to allow a little ordinary bread. It is best taken as thin toast, rather overtoasted. In diabetic cookery, saccharin may take the place of sugar.

The various diabetic foods which are sold are not, as has been said, very palatable, and in the case of many of them, if one has them analyzed as we should do, we will find that they are by no means as free of starch as is represented. One has, therefore, to be careful in the selection of the almond, gluten, or cocoanut cakes which we allow the patient to have.

In some cases of diabetes, certain carbohydrates can be taken without harm. Kulz showed, many years ago, that in diabetics the liver frequently retains the power of transforming levulose into dextrose, and consequently both levulose and the nearly allied inulin have been used in the diet of diabetics. Regarding the latter of these, however, the careful observations of Sandmeyer show that it is very indigestible. Levulose, which can be readily obtained commercially, may very properly be made use of in diabetic diet, care being taken to ascertain that the amount of sugar in the urine is not thereby increased.

Now while in every case of the severe form of diabetes a somewhat rigorous diet requires to be adhered to if the disease is to be held in any way in check, no such severity of dieting is necessary in the lighter cases. Indeed, sometimes when the sugar is small in quan

tity and is associated with gout, all that is needed is that the patient should be given a diet suited for that malady. And between these two extremes all sorts of intermediate conditions may be found. That is, one may often encounter cases in which, though much starch occasions glycosuria, a small quantity will not do so, the amount of disturbance of the glycogenic function being slight. It therefore becomes one's duty to discover—in case of any individual patient—how much, if any, starch he can consume without increase of sugar in the urine. He should be put at first on a very strict diet, and after a week or so, when the quantity of sugar present in the urine has become stationary, he should be allowed to take a certain small quantity of starchy food. If no increase of sugar results a little more may be given, and in this way one learns what quantity of starch it is safe to give.

Patients who can afford to visit Vichy or Carlsbad, and to whom a few weeks spent abroad are not distasteful, may very well be sent to one or other of these places, provided only that the disease is not too far advanced. Dr. Brown has seen very marked benefit follow a course at both these spas.

The medicinal treatment of diabetes is not very hopeful. Opium has been much used, and sometimes great benefit follows its employment. It usually has to be given in rather full doses, and a remarkable diminution of the sugar in the urine may then be observed. Sometimes morphine may be found to suit better, and codeine is likewise frequently employed. Benefit may also be found to follow courses of arsenic. This remedy should be given in gradually increasing doses and for a considerable period of time. Many other remedies have been employed, such as lactic acid, glycerin, iodoform, antipyrin, phenacetine, salicylate of soda.

There remains only one point to note, viz., that in regard to the use of extracts of the pancreas, if, as we have reason to believe, destruction of the pancreas is followed by the symptoms of severe diabetes, it would seem logical, in the light of the results obtained with the thyroid gland in cases of myxedema, to expect great benefit from the administration of extracts prepared from the pancreas. Unfortunately, however, this is not the case. Pancreatic extracts have been administered many times, but it is seldom that any distinct effect has been obtained. What the reason of this is we cannot tell. It may be that the particular ferment of which we are in need has been destroyed in the preparation of the extract, or has been broken up by the juices of the stomach before it could be absorbed. However that may be, it is to be hoped that in the not far distant future some method of preparation of pancreatic ferment and of its administration may be discovered, which shall prove useful in the cure of diabetes.

SULPHONAL POISONING.

A case of sulphonal poisoning is reported by GULLAND in the *Scottish Medical Journal* for March, 1899. In discussing this case he takes up: (1) The clinical history of sulphonal poisoning; (2) the differences between this and acute sulphonal poisoning; (3) the pathology of the two conditions; (4) their treatment; (5) the conditions under which sulphonal should and should not be used.

1. ***Clinical History.*** — One must carefully distinguish, as Friedländer was the first to do, between the by-effects which may appear after patients have taken sulphonal, and which are due to a temporary effect of the drug, and those more serious symptoms which are the result of its cumulative action, and alone deserve the name of poisoning.

The former usually appear on the day after a medicinal dose of sulphonal, and include headache, tinnitus, muscular weakness, feeling of fatigue, continued sleepiness, giddiness, loss of coordination, and sometimes a scarlatiniform rash. The percentage of persons in whom one or other of the symptoms occur is not very large, and as a rule they pass off rapidly, with the occasional exception of the disturbance of coordination.

Chronic poisoning does not set in unless the patient has taken at least several medicinal doses, and usually not unless he (or she rather, for women are much more frequently affected than men) has been taking the drug for a month or so. Schulz's fatal case was in a woman who had only had fifteen grains of sulphonal sixteen times in a month — an allowance which many people exceed — but Dr. Gulland can find no other fatal chronic case where so small an amount was taken.

As a general rule the first symptoms to appear are gastrointestinal—anorexia, thirst, nausea, vomiting, and especially constipation, which may be followed by diarrhea. There is sometimes cardiac weakness; there may be a skin eruption; the temperature does not seem to be specially affected, as both rise and fall have been observed. Soon after the

gastric symptoms, as a rule appear nervous symptoms, of which the most marked are ataxia of the extremities and a staggering gait, sometimes, though not so often, paralysis of the extremities or of facial muscles, and in very severe cases localized or general convulsions. Mental apathy and depression, with anesthesia of the skin, often come on along with the motor symptoms, and in the fatal cases pass on to coma before death. Drowsiness is not a very prominent symptom in most cases until the final stage is reached. Sometimes early, sometimes later, appear changes in the urine, at first a diminution in its amount, then sometimes albuminuria, and especially that symptom which has come to be generally associated with sulphonal poisoning — hematoporphyrinuria — the excretion of deep-red urine, which owes its color to the pigment hematoporphyrin. This urine is always intensely acid, and contains unchanged sulphonal.

Though it is evident that the hematoporphyrin must be derived from the hemoglobin of the blood in some way, we know very little about the condition of the blood in these cases. Some observers have found a diminution in the number of red corpuscles and a fall in the percentage of hemoglobin, but the difference from the normal has seldom been very great, and many of the people in whom the poisoning occurred were very likely the subjects of a certain amount of anemia. More will be said of this in discussing the pathology of the condition.

The case which Dr. Gulland has narrated was a fairly typical one, and was terminated, as most of them are, by heart failure.

2. The differences between chronic and acute sulphonal poisoning are very considerable. The symptoms appear rapidly after a single large dose, taken by accident or for suicidal purposes as a rule. Sleep comes on, and sometimes a prolonged sleep lasting for days and followed for a time by giddiness is the only evil effect. Sixty grains has produced a sleep lasting seventy-five hours, and in one case a woman who had taken thirty grains slept for forty hours, could not be awakened, and died at the end of that time.

In most cases which recover there are some after-effects — gastrointestinal disturbance, muscular paralysis, ataxia, nephritis—which last for a longer or shorter time, and are not dependent on the amount which has been taken. It is curious, however, that hematoporphyrinuria only occurs, if it occurs at all, very exceptionally in the acute cases. With this may be noted the fact that in almost all of the acute cases in which the blood has been examined no abnormality has been found, or if any change was noted it was simply a diminution in the percentage of hemoglobin, which need not have been due to the sulphonal.

The prognosis in the acute cases is relatively much better than in the chronic ones; if treatment is begun early one can almost depend on saving the patient, while a pronounced case of chronic poisoning can hardly recover.

To recapitulate briefly, the symptoms in chronic cases are usually, first, gastrointestinal, especially vomiting and constipation, then nervous ataxia and depression, passing into a sleep-like coma, and with that albuminuria and hematoporphyrinuria. If the patient recovers these symptoms pass off, the hematoporphyrinuria being usually the first to disappear, and some nervous symptoms generally remaining longest. In acute cases the first and prominent symptom is sleep, and only when that has ceased do the other symptoms become evident. They usually pass off entirely after some time and leave the patient well.

3. The pathology and pathological anatomy of the condition depend on the facts that sulphonal is not readily soluble, that it may remain for a long time in the alimentary tract, that it or its products may also be retained in the blood and cause changes there, and that it is ultimately excreted by the kidneys. It will at once be seen that any weakness, functional or organic, along its line of march will favor the occurrence of chronic poisoning on the one hand, or add to the dangers of acute intoxication on the other. Thus constipation favors poisoning, and we find that almost all the fatal chronic cases have occurred in people who were habitually constipated. Any affection of the liver, of the blood or heart, and, at the other end of the chain, of the kidney, will assist in the accumulation of the sulphonal in the body and enable it to produce toxic effects. There is no doubt that accumulation takes place in perfectly normal people. Morro has shown that after a few doses have been taken the amount excreted unchanged in the urine becomes larger every day, and when the drug is stopped unchanged sulphonal is excreted in the urine for at least three days.

Let us follow the drug in its course through the body, and see what changes are produced in the different organs. The stomach and

intestines are said sometimes to show superficial necrosis, and Stokvis believed, from his experiments on rabbits, that hemorrhages often occurred in the gastric and intestinal walls. These, however, are common in rabbits and not peculiar to sulphonal poisoning in them. In the liver congestion has always been found, and sometimes the cells are broken down; they are always more or less fatty, but Dr. Gulland has nowhere else found described the degeneration of the walls of the portal vein which he has noted. The heart has generally been found to be fatty, and from its weakness result the various signs of stasis which he has described in the lungs and spleen of his case, while Hoppe-Seyler and Ritter refer the occasional bronchopneumonia to the aspiration of food particles into the lungs during the coma.

With regard to the changes in the kidney there is a striking unanimity of opinion. The chronic cases of Marthen and Stern showed exactly the same destruction of the secreting cells which Dr. Gulland has described, the acute cases of Hoppe-Seyler and Ritter and others presented it, and it has been produced experimentally in animals; so that it seems to be an invariable phenomenon. It accounts, of course, for the oliguria and albuminuria, and for the tube-casts which have often been found in the urine of both chronic and acute cases.

The hematoporphyrinuria is much more difficult to explain and has roused the interest of many observers. Hematoporphyrin, or iron-free hematin, is derived from hemoglobin when it is acted on by acids in the absence of oxygen. Hemochromogen is first formed, which then loses its iron and becomes converted into hematoporphyrin. It has been usual to assume that hematoporphyrinuria is causally associated with sulphonal poisoning and that it has to do with the frequent fatal issue, and to assume as a result of this that sulphonal is a blood poison in the sense in which either chlorate of potash or anilin is a blood poison. But it appears to have been overlooked that sulphonal can kill without the production of hematoporphyrinuria, and without causing any reduction in the number of red corpuscles or the percentage of hemoglobin; for, as Dr. Gulland has already said, hematoporphyrinuria does not appear in the acute cases, nor in those acute cases in which it has been examined has there been any change in the blood. In several of the chronic cases, it is true, anemia has been found, but it has always been the kind of anemia which is likely to occur in the course of a parenchymatous nephritis—a slight diminution of the red corpuscles and a rather greater diminution in the hemoglobin, without any marked change in the leucocytes. The facts, besides the hematoporphyrinuria, which make one think of sulphonal as a blood poison are the fluidity of the blood and the ease with which the red corpuscles become transformed into shadows. The patients never looked specially anemic; they were never cyanosed as in anilin poisoning, and it would seem that the cause of death in both the acute and chronic cases should be sought in the kidney condition which is common to both, and which must certainly involve retention of products which should be excreted. It seems, in fact, that the cause of death is probably a uremia, using the word in its widest sense, whose symptoms are masked by the effects of the drug. We must remember, too, that as von Mering has shown, it is impossible to produce hematoporphyrinuria at will, either in animals or man, even by giving large doses to animals for a long time, and though these animals are poorly nourished and acids are given along with the sulphonal, and the condition occurs in the most capricious way.

Nakorai has recently shown that Stokvis was right in saying that hematoporphyrin was present constantly in the urine of patients suffering from lead poisoning, but the only other condition where hematoporphyrinuria is at all constant is in hemorrhage from the intestine. Otherwise it is rare, though there seems to be small traces of hematoporphyrin in many normal urines. There seems a possibility that both in lead and sulphonal poisoning the hematoporphyrinuria may be due to intestinal hemorrhage, but we know so little about the way in which sulphonal is absorbed, or even what are its decomposition products in the urine, that it is impossible to dogmatize on the matter. Kast's original view that it is excreted mainly as ethyl-sulphonic acid is not now widely held. Von Mering suggests that it may be excreted as amido-derivatives of ethyl-sulphonic acid. Certainly the urine is always strongly acid, and equally certainly hematoporphyrinuria can be controlled by the free use of alkalies.

Dr. Gulland states that he is far from saying that sulphonal may not sometimes act as a blood poison, and that the hematoporphyrinuria may not partly be due to that, but there must certainly be some other factor at work of which we as yet know nothing, and

which determines that in one case a patient shall take sulphonal for months or years unharmed, while another dies in a month from the time the first dose is taken.

It is somewhat curious that in Dr. Gulland's case, though the kidney was so seriously affected, no albumin was found in the urine by any of the ordinary tests. The explanation seems to be that there must have been complete suppression of urine secretion for some time before death, probably for twenty-four or thirty-six hours, and that the urine which was drawn off by the catheter was the product of the kidneys before they became so seriously affected. At the post-mortem examination only half an ounce of urine was found in the bladder, although it was about ten hours since the catheter had been passed, and that amount might easily have been left in the bladder after that operation. Dr. Gulland suspects there had been complete anuria for some time before death.

He says he cannot explain the condition of the blood, especially the presence of so large a percentage of lymphocytes in the films, as he has made no special observations on the state of the blood found post mortem in the heart. There certainly must have been some anemia during life, or the few nucleated red corpuscles and poikilocytes would not have been present; but equally certainly the anemia could not have approached in degree that in a pernicious anemia, or even that in the acute anemias, as, for example, that of septicemia. It is, of course, possible that the sulphonal or its products may in some way alter the hemoglobin of the corpuscles or alter the blood plasma, without causing a very extensive breaking down of corpuscles; but the mystery still remains unsolved, why it exerts its action as a blood poison only in certain individuals, and only when it is allowed to act as a chronic and cumulative poison.

4. The treatment of the two forms of poisoning may be summed up as follows: In the acute form, as the poison is absorbed but slowly, the stomach should be emptied if the patient is seen early enough, or the vomiting which is often present may be encouraged. Later, purgatives may be given to remove as much as possible of the drug from the intestine, and all possible means be tried to keep the kidneys acting freely. Neisser saved his case, where 1500 grains had been taken in a single dose, by giving large enemata of warm water frequently repeated, which produced free diuresis; and it would probably be well to try this again. Other treatment must be symptomatic.

In the chronic form, while it would be well to clear out the bowels and to promote diuresis, the best results have been obtained by giving large doses of alkalies, as Muller did, in such quantities as to render the urine alkaline if possible; probably both the bicarbonates and either the acetates or citrates should be given. As before stated, unless the chronic cases are very slight, the prognosis is very bad. Alkalies control the hematoporphyrinuria, and where their use has been stopped too early the red coloration which had entirely left the urine has returned.

5. *Indications and Contraindications.*—It is not worth while to speak of the indications, for upon making inquiries it will be found that probably more sulphonal is used than all the other hypnotics put together, so that it evidently meets a felt want. It has the advantage of giving a very restful sleep; and as most people probably only use it now and again, so that plenty of time is allowed between doses for elimination, there is no great danger in its use in the majority of cases.

It should not be given in cases where there is great prostration, in cases where there is gastrointestinal disturbance, especially if this takes the form of constipation, in cases of heart disease, in old people, or where there is a parenchymatous kidney lesion, acute or chronic. The maximum daily dose for a man should be thirty grains, for a woman fifteen to twenty grains; and it should never be given continuously, but pauses of at least three or four days should be allowed from time to time to permit elimination of the accumulated drug. It should never be given in the solid form, both because it is less quickly absorbed, and acts less quickly in that way, and because it is more likely to cause gastrointestinal disturbance. It is most soluble in hot alcohol, so that hot whiskey toddy is probably the best medium in which to give it; the next best, hot water.

The occurrence of any symptoms of chronic poisoning should be an indication to stop its use at once, and no patient who requires to take sulphonal for a long period should be allowed to pass out of observation. It is one of the disadvantages of the tabloid method of putting up drugs that patients can get such drugs as sulphonal without difficulty and can continue their use without let or hindrance.

In cases where a hypnotic of the class to

which sulphonal belongs is required, and where it is not desirable to use sulphonal, trional may with advantage be employed. Sulphonal is di-ethyl-di-methyl-sulphone-methane, and trional is derived from it by the substitution of another ethyl radical for one of the methyls. It is much more soluble, and consequently acts in a smaller dose, more quickly, more certainly, and without leaving the unpleasant after-effects of sulphonal. Though it is not absolutely free from the risk of causing chronic poisoning, it is much less likely to do so than sulphonal, as it does not accumulate so much. Its only relative disadvantages are that it costs about twice as much as sulphonal, and that it has a more unpleasant taste. It is displacing sulphonal largely in Germany, to judge by the opinions quoted by von Mering, but shows little sign of doing so in this country.

Dr. Gulland does not consider that sulphonal should be regarded as a dangerous drug, but he would plead for greater caution in its use and especially for greater discrimination in the choice of the cases where it is to be employed. Its apparent capriciousness of action is its chief danger, and a drug which has a recorded death-roll of at least thirty cases, and probably many more unrecorded, is not one which should be recommended with a light heart to the first-comer.

GLONOINISM.

While we are all more or less acquainted with the effects of nitroglycerin when introduced into the system in medicinal doses, we are perhaps not so familiar with the peculiar conditions it produces when absorption takes place by inhalation and through the skin in doses the size of which we have no means of ascertaining, but which may be enormous. Observations, therefore, of a class of patients of this kind, carefully made and covering a considerable period of time, cannot fail to prove interesting. In *International Clinics* for January Dr. Geo. C. Laws has reported a number of cases of intoxication by this agent, to which condition he has given the name "Glonoinism." His experience was obtained among the workers in a nitroglycerin factory during the past twenty years, where many of the employees are compelled to handle thousands of pounds of nitroglycerin a day, and the hands and arms as far as the elbows are covered with it, frequently for hours at a time. Naturally absorption through the integument, or, as is now believed, some volatilization and absorption through the lungs, occurs. In either case the result is the same; the drug exerts its action upon the arterial system through a paralyzing action upon the vasomotor system. The left ventricle dilates as well as the blood-vessels themselves. Consequently the pulse is soft and compressible, though usually full, and is somewhat accelerated. Palpitation of the heart is common, and with it a corresponding throbbing of the arteries, which latter being most appreciated in the vessels of the brain gives rise to a severe throbbing occipital headache to which the name "powder headache" has been given. The dilatation of the arteries results in a marked reddening of the entire body surface, though with an increased poisoning some failure of circulation ensues and cyanosis more or less profound succeeds. Among others of the initial symptoms may be mentioned nausea and vomiting, diarrhea, more or less prostration with great languor, and eruptions of various kinds.

After a lapse of a week or ten days a sort of immunity, as far as the "powder headache" is concerned, is acquired by the new man; but as the drug is thrown off very soon after absorption, the immunity is by no means lasting, and a few days' absence from work is sufficient to destroy it entirely. Indeed, some of these men suffer from the "powder headache" every Monday morning. These symptoms, which might be called acute, are unfortunately not confined to those actually engaged in the work. The wives and children, friends, and even medical attendants suffer. The wives, if they attend to the laundry, are usually attacked every wash-day, and ironing is particularly liable to precipitate an attack on account of inhaling steam from the clothes. In time these women may acquire a comparative immunity, but still they usually suffer to some extent when ironing. Dr. Laws states that he himself, as well as his colleagues, has frequently had attacks of the headache, even after a short physical examination of the chest. Among the children, especially the younger ones, several deaths have undoubtedly been due to their having slept with their parents and inhaled the exhalations from their bodies.

Following the acute trouble, by a greater or less period of time, a chronic condition of dilatation of the heart and of the entire arterial tree supervenes. This varies much in degree, depending upon the amount of the substance handled each day, the length

of time exposed, and the individual resisting power; but it is present to some extent in all. The symptoms vary with the degree of dilatation; in mild cases an accentuated first sound with diffuse apex-beat is present; then arrhythmia, palpitation, shortness of breath on slight exertion; finally, incompetency of the valves with regurgitation of the blood, as indicated by murmurs over the various valvular seats. With this condition there may be any of the accompanying symptoms of impaired cardiac action. As far as the nervous system is concerned, there is usually a certain amount of mental hebetude, and especially is this the case during the working hours. A peculiar feature is the action of alcohol upon the victims of glonoinism, a small drink of whiskey often bringing on the symptoms of the primary attack of which we have spoken. The women are also subject to chronic glonoinism, and while the same course may be followed as in the case of their husbands, as a rule the symptoms are not so severe. With them, however, exophthalmic goitre is by no means uncommon; and menorrhagia and metrorrhagia, miscarriages, premature births, and comparative sterility are all more common than among their sisters not influenced by these peculiar conditions. The children of these people are far from strong, as compared with other children of the neighborhood, and are able to offer but little resistance to the onslaughts of disease, particularly infectious diseases and catarrhs.—*Journal of the American Medical Association*, March 25, 1899.

A SECOND CASE IN WHICH RECURRENT MAMMARY CANCER DISAPPEARED AFTER TREATMENT BY OOPHORECTOMY AND THYROID EXTRACT.

Dr. HERMAN published in *The Lancet* of June 11, 1898, a case in which recurrent mammary cancer had disappeared after oophorectomy and the continued administration of thyroid extract. He now adds (*Lancet*, April 22, 1899) to that report that the patient continues in good health (April, 1899), has no sign of recurrence, and has gained about five pounds in weight since that report was written. He also corrects an error in the report. It was said that the tumor was not examined microscopically. It was examined and found to be indubitably cancer. He has now to report a second case in which similar treatment has been followed by a like result.

The patient had had three children and two miscarriages, the last pregnancy being fourteen years ago. She first noticed a lump in her right breast towards the end of 1894, she being then aged forty-five years. In May, 1895, she went to the Middlesex Hospital, and on June 1 Mr. George Lawson removed the right breast with the fascia covering the pectoral muscle and four enlarged axillary glands. The growth on microscopical examination proved to be carcinoma. On October 21 of the same year she was readmitted with three nodules situated just beneath the scar and just external to the anterior axillary line, and two others just above the center of the scar. There were also further lumps in the axilla, which were thought to be enlarged glands. The nodules and enlarged glands were removed on October 23. The patient stated that "the old wound reopened" in April, 1896, and from that time continued to discharge. In November, 1897, she noticed a lump in the left breast. She was admitted into the London Hospital on July 11, 1898. There was then an ulcerated surface over the third and fourth ribs, depressed at its center and fixed to the subjacent parts, with thickened margins. Its general shape was that of an oblong with spurs projecting here and there, the dimensions of the oblong being three and a half inches by one and a half inches. In the right axilla was a depressed cicatrix fixed to the rib below, separate from the ulceration and without sign of recurrence of cancer. In the left breast was a lump of stony hardness which measured with calipers (the skin over it being therefore included) three and a half inches by two inches. The left nipple was drawn in, and there were hard, enlarged glands in the left axilla. The patient had menstruated regularly until six months before admission. Since then menstruation had been irregular, the last time being three months before admission.

On July 12 both ovaries were removed, and as soon as the vomiting caused by the anesthetic had subsided the patient was put upon thyroid extract, five grains three times daily. This she has taken ever since. She left the hospital on August 5. Her weight was then 12 stone 2½ pounds. She came to report herself on September 15. The ulcer had completely healed. The left breast was much softer. Her weight was 13 stone 7½ pounds. She was next seen on October 14. The scar in the right axilla was movable. There was no distinct lump in the left breast,

and there were no enlarged glands in the left axilla. On March 28, 1899, her weight was 14 stone 10 pounds. There were some keloid-like nodules in the scar, but these had not grown and showed no tendency to break down. The left breast presented the characteristics of health, except that the nipple was retracted. Her right arm and hand swelled occasionally after scrubbing, but this had been the case since the first operation.

Two points call for comment. First, as to the relative importance of the two parts in the treatment—oophorectomy and thyroid extract. Mr. Stanley Boyd thinks that oophorectomy alone will explain the benefit in Beatson's cases. He has treated seven cases and Mr. Watson Cheyne two by oophorectomy, but in only one was there benefit great enough to be called cure. He has collected six other cases in which the information given was not enough to enable the cases to be tabulated, and out of the whole fifteen, in only four was there "relief worth obtaining." In the face of this experience Dr. Herman says he cannot agree with Mr. Stanley Boyd in thinking that oophorectomy alone will explain the benefit.

Mr. Stanley Boyd has published five cases in which thyroid extract was given. In one it was only given for a month; in another it was not begun till oophorectomy had failed and recurrence had taken place; in three other cases he gave thyroid extract to patients whose ovaries had not been removed, and in two of them some benefit seemed to follow.

Page and Bishop have published a case in which cure followed administration of thyroid extract. Four cases have now been published of cancer treated by oophorectomy plus thyroid extract, and in three of them the cancer disappeared.

Dr. Herman submits that the evidence at present before the profession goes to show that greater benefit results from the combination of oophorectomy with thyroid extract than from either of them separately, and that it is desirable that the effects on cancer of the combination of oophorectomy with thyroid extract should be tested as fully as possible.

Next, as to the word "cure." No one can say that these patients have been in the strictest sense of the word "cured" until they have been watched through the remainder of their lives. But Dr. Herman submits that to make cancer disappear is a much greater thing than to mechanically remove it with the knife; and if we can maintain that condition of the organism which led to the disappearance of already formed cancer tissue, we may reasonably expect that this condition will be incompatible with return of cancerous growths. These patients cannot develop new ovaries, and they have been instructed to take thyroid extract for the rest of their lives. If they do so, Dr. Herman thinks there is a sure prospect of freedom from cancer. In conclusion, he asserts that oophorectomy plus thyroid extract has given results which have not been approached by any other treatment of recurrent mammary cancer.

PREGNANCY AND THE THYROID GLAND.

During pregnancy, and even to a slight extent during menstruation, the thyroid gland undergoes more or less pronounced enlargement. This becomes noticeable toward the fifth month of gestation, and continues until the end of the puerperal period; and it is a physiological fact to which, perhaps, sufficient attention has not been paid, for it may possibly help to explain a whole train of nervous symptoms of which, so far, no explanation has been attempted. The first question that suggests itself is whether the enlargement is due to simple hyperemia or whether it is a genuine hypertrophy. To determine this point Dr. Lange, of Berlin, administered thyroid preparations to several pregnant women under his care, with the result that under this treatment the gland diminished in size, the engorgement reappearing as soon as the treatment was suspended. He infers from this fact that the enlargement is really of the nature of hyperplasia, such hypertrophy being a strictly physiological process. The only possible explanation of this phenomenon is that there exists in the blood of pregnant women a substance or substances peculiar to this state, capable of acting directly upon the thyroid gland.

It must, however, be borne in mind that all pregnant women do not display this tendency to enlargement of the thyroid. Thus of 133 women observed during the last three months of pregnancy, twenty-five did not exhibit any tendency to glandular enlargement, but of these twenty-five no less than eighteen were suffering from albuminuria of pregnancy. As, on the other hand, women suffering from chronic nephritis exhibit this gestation goitre in the usual way, Dr. Lange concludes that the thyroid hypertrophy is more likely to be

absent in women who fall victims to one or other of the renal affections associated with the pregnant state. It is obvious that the non-existence of "gestation goitre" cannot be due merely to the existence of the albuminuria of pregnancy, seeing that the latter makes its appearance, as a rule, much later than the hypertrophy of the gland; and, moreover, it has been shown that Bright's disease by no means interferes with the development of this ephemeral variety of goitre.

Comparative experiments on pregnant cats seem to show that pregnant animals require a larger volume of thyroid gland for the maintenance of health than non-pregnant animals, and when more than four-fifths of the gland is removed the animal develops tetany, which subsides under the administration of thyroid extract. Moreover, in a cat possessed of sufficient thyroid gland to maintain health under ordinary circumstances, the supervention of pregnancy is soon followed by symptoms of more or less pronounced renal disease. Clinical experience, as far as it goes, seems to confirm these experimental data, for Dr. Lange has had under observation two women who during their first pregnancies had albuminuria and no goitre, whereas in subsequent pregnancies they presented this hypertrophy of the thyroid gland and no albuminuria. These facts would seem to warrant the inference that there is a close relationship between the activity of the thyroid gland and that of the kidneys, and it is conceivable that another field of usefulness may be opened out for this protean medication, not only in obstetrics, but also in gynecology, for it is quite possible, though no clinical demonstration thereof is as yet available, that some forms of dysmenorrhea may be dependent upon deficient activity of the thyroid gland, the importance of which in the animal economy has so recently been demonstrated.—*Medical Press and Circular*, May 3, 1899.

JUSTUS'S TEST FOR THE DIAGNOSIS OF SYPHILIS.

CABOT and MERTINS, in the *Boston Medical and Surgical Journal* of April 6, 1899, record their views concerning this test. In two papers published in 1895 and 1897 respectively a new test for the diagnosis of doubtful cases of syphilis was described by Justus, an assistant in Schwimmer's clinic at Budapest. The test depends upon the sensitiveness of the red blood-corpuscles in syphilitics to the action of mercury exhibited by inunction, or by subcutaneous or intravenous injection. This sensitiveness, which is said by Justus to be greater in syphilis than in any other disease, is shown by a sudden sharp fall in the percentage of hemoglobin during the hours immediately following the administration of the drug. Later the hemoglobin gradually rises to a point above that seen before the injection. Such a sharp fall of ten to twenty per cent in the hemoglobin following the use of mercury was observed by Justus in over 300 cases of syphilis, and the absence of any such fall in non-syphilitic cases was attested by "very numerous" control experiments.

The sign was observed in all untreated cases of the secondary, tertiary, or congenital form of the disease, and in thirteen out of sixteen cases in which only a fresh chancre and inguinal adenitis were present. "Latent cases," so called, showing no lesion, and cases in which the lesions have passed their acme and are subsiding, either spontaneously or under treatment, do not react characteristically to the test. It is therefore in florid cases with advancing lesions of whatever type that the test is positive. This includes relapses of all kinds so long as the lesions are in active condition.

The amount of the fall in hemoglobin after a given dose of mercury depends, according to Justus, on the severity of the disease and the condition of the patient. The same conditions determine how soon the blood shall return to its normal condition.

If a subcutaneous or intravenous injection is given the characteristic sharp fall in hemoglobin usually follows each of the first three or four doses, while if the method of inunction is used the hemoglobin falls only after the first inunction. If the drug is given by mouth no effect on the blood is to be observed. Intravenous injections act so rapidly that within an hour a loss of fifteen per cent of coloring matter has been noted. Microscopic examination of the blood immediately after an intravenous injection of mercury (corrosive sublimate, one to six milligrammes, in from 1000 to 3000 parts of normal salt solution) showed evidences of destruction of red corpuscles, with hemoglobinemia and an increase of urobilin in the urine. This is very transitory, however.

As an example of the value of the test in differential diagnosis, Justus quotes a case of advanced pulmonary tuberculosis in a man who had had syphilis nine years before. An

ulceration of the larynx existed, and experts differed as to whether it was a syphilitic or a tubercular ulcer. Justus's test was negative, and it was confirmed by the results of the autopsy, which showed a tubercular and not a syphilitic process.

Charts indicate the daily changes in the hemoglobin in two typical cases published by Justus. The first chart shows the course of the hemoglobin in a case of syphilis treated by inunctions, the crosses marking the times at which the drug was given. The sharp initial drop followed by a gradual rise is well shown. The second chart shows the effect of intravenous injections of corrosive sublimate (one to six milligrammes, diluted 1000 to 3000 times). Here not only the first administration of the drug but the three succeeding ones are followed by considerable losses in hemoglobin, and it is only after the first injection that a steady rise takes place.

In the summer of 1898, at the out-patient department of the Massachusetts General Hospital, Cabot and his colaborer tried this test in seven cases of undoubted syphilis, four cases suspected of being syphilitic, and thirty-three control cases of various other diseases —a total of forty-four cases. Inunctions were used in all cases, from fifteen to forty grains of the unguentum hydrargyri being given to each patient, with directions how to apply it.

The hemoglobin was tested before the inunction, and then twenty-four hours later; the tests being all performed by the same observer with the same instrument and under similar conditions. A change of less than ten per cent was not counted as a positive reaction.

In a general way the results centainly tend to confirm the statements of Justus. All the syphilitic cases reacted strongly and characteristically, and in thirty-three control cases there was but one genuinely positive reaction.

The seven active syphilitic cases lost an average of twenty-one per cent of hemoglobin after one inunction. This is surely not accounted for by errors in technique, and is in very marked contrast with the figures obtained in the control cases. Of these only two out of thirty-three showed any considerable change after the inunctions. Slight gains and slight losses are recorded by all within the limit of error, except two cases. One of these was a case of tertian malaria in which a chill occurred just after the inunction. This is sufficient to account for the loss of ten per cent of hemoglobin. The other was a case of chlorosis; in this a typical positive reaction was obtained with a loss of thirteen per cent in hemoglobin. So far as it goes, this case certainly tends to diminish the value of Justus's test. No evidence of syphilis was present and no history of it.

Results: (1) Positive reactions in seven cases of syphilis; (2) negative reactions in thirty-two control cases of other diseases; (3) positive reaction in one case of chlorosis.

PNEUMATIC MASSAGE IN THE TREATMENT OF DEAFNESS AND TINNITUS.

Webster reports five cases treated by pneumatic massage. They include conditions resulting from chronic suppuration of the middle ear, varying from small perforation to complete destruction of the tympanic membrane. These observations were made on cases where suppuration had ceased and the middle ear was dry. The hearing was markedly improved in all but the first and second. In the first, it is noted, the gain was very slight; in the second, that a slight primary gain was followed by a slight loss. The tinnitus was markedly relieved in the first case; temporary relief only after each treatment in the second; lessened in the third; permanently relieved in the fourth; lessened in the fifth. The cases showing the greatest gain in hearing were those in which suppuration had recently ceased. The case which showed relief of tinnitus permanently was not a recent case. Webster concludes that in the class of cases above mentioned pneumatic massage may be of considerable value in addition to other means of treatment. He was unable to realize any greater benefit from very rapid vibrations than from slow. He therefore sees no advantage to the patient in a motor, but thinks the Siegle speculum with the hand-bulb would do equally well. The rapid vibrations were attended with some noise, which was at times disagreeable to the patient.

PERCUSSION OF THE CRANIUM.

Gille de la Tourette and Chipault (*La France Médicale*, No. 13, 1899), recognizing the fact that the thickness of the skull of the normal individual, though it has been carefully studied out, is of little service as a guide to the surgeon in individual cases of disease, have endeavored to provide a

reliable means of determining this matter by percussion. They employ either a small mallet, or, preferably, the finger; the latter conveys the sense of elasticity and of resistance, which after practice can be justly interpreted. This percussion should be practiced with the mouth of the subject closed. The percussion note is resonant in the child; dull in the adult, especially in the male; less dull in the aged. It is more resonant in the frontal and parietal regions than about the occiput. The authors report five cases which they believe show the value of percussion. The first was trephined because of mental symptoms following trauma; the note over the entire frontal region was dull, as compared with the note elicited from the normal heads of the attending surgeons. The frontal bone was found on operation to be greatly thickened and dense in structure. One case of trephining practiced for the removal of a neoplasm, which was not found, gave a clear percussion note; the skull was extremely thin. One trephining practiced for old trauma gave a normal percussion note, and the skull was of normal thickness. The other cases were equally satisfactory to the authors, who announce that the resonance of the cranial region varies according to the thickness of the bone, being greatest when the bone is thinnest, and inversely. They also detected a "cracked-pot" sound in the case of old fracture, and express the hope that this may be a valuable means of diagnosing fractures of the skull which are accompanied by no other pathognomonic symptom.

A METHOD FOR THE REDUCTION OF DISLOCATION OF THE HIP.

STURROCK (*British Medical Journal*, April 8, 1899) thus describes a method of reducing dislocation of the hip: The patient, being laid upon his back on the floor, is put under the influence of an anesthetic. The surgeon kneels upon his left knee when the left hip is dislocated, and on the left side of the patient. The patient's thigh is then carefully flexed to a right angle, and while this is being done the leg is also flexed to a right angle, and laid with the most prominent part of the calf on the right knee of the surgeon. The ankle is then firmly grasped with the left hand, and the condyles of the femur with the right. The thigh is then abducted for thyroid dislocations, adducted for dorsal and pubic, and rotated in for all, by drawing the foot away from the middle line and keeping the knee steady. Traction is now made by steadily depressing the ankle, the surgeon using his knee as the fulcrum; the patient's leg makes a most powerful lever, and the pelvis can be easily raised off the ground if necessary, the weight of the body acting as counter-traction; then finally the thigh is rotated out, and while this is being done the head of the femur slips into the acetabulum.

WOUNDS OF THE PERITONEAL PORTION OF THE RECTUM.

QUÉNU (*Revue de Chirurgie*, January, 1899) points out that in cases of wound of the rectum it is very important with regard to prognosis and treatment to determine as soon as possible whether the abdominal cavity has or has not been penetrated. To a collection of thirty-five previously recorded cases of penetrating wound of the peritoneal portion of the rectum, this surgeon adds one under his own care in which laparotomy was performed with good results. Notwithstanding the facilities afforded by the use of the rectoscope in exploration of the rectum, it is very difficult to make out whether the wound has penetrated or not, especially if the examination be made soon after the receipt of the injury, and before there are any indications of abdominal mischief. The author advocates laparotomy both in cases in which there can be no doubt as to penetration, and also in doubtful cases in which there are some signs of commencing peritonitis. In six of the thirty-six collected cases laparotomy was performed four times with success, twice with fatal results, the mortality being thus 33.3 per cent. Of twenty-nine patients on whom laparotomy was not performed, twenty-four died, the mortality being eighty-two per cent.

In describing the details of his treatment of a wound extending from the rectum into the peritoneal cavity, the author insists on the importance of prompt laparotomy, of elevation of the patient's pelvis during the operation on an inclined table, of free exposure of the interior of the pelvis by upward displacement of the small intestines, of careful examination of the bladder and sigmoid flexure, which might also be involved in the injury, and of prolonged and thorough cleansing of the abdominal lining and contents by warm artificial serum. The duration of the operation and the chief difficulty will, as a rule, vary according to the seat of

the penetrating wound. Whilst such a wound of the sigmoid flexure may be readily and speedily closed by a double row of sutures, it will be found a very laborious task to reach and close an opening situated at the bottom of the rectovesical pouch. Much of this difficulty, it is thought, might be overcome by elevation of the anterior wall of the rectum by means of a carefully distended elastic bag.

THE TREATMENT OF FAVUS.

VON PETERSON (*Berliner Klinische Wochenschrift*, No. 15, 1899) applies a two-per-cent carbolic acid ointment to the scabs three times a day until they are softened and removed. The diseased area is then painted every second or third day with iodine tincture. Epilation is not always necessary. A cure may require a ten months' course of treatment.

HERPES AS A FORERUNNER OF CHANCRE.

ANDERY (*Berliner Klinische Wochenschrift*, No. 15, 1899) has noted in a number of cases preputial herpes preceding the development of a chancre, and regards the outbreak of an eruption of this kind in a young man who has been exposed to the disease as highly suggestive of syphilitic infection.

THE TREATMENT OF PROSTATORRHEA BY PROSTATIC SUBSTANCE.

OPPENHEIMER (*Berliner Klinische Wochenschrift*, No. 15, 1899), led thereto by the published reports of the excellent results of organotherapy, has been administering prostatic substance to patients suffering from non-gonorrheal prostatorrhea. He notes as a result a rapid and permanent cure. The treatment is contraindicated by the presence of the gonococci. The dosage and method of preparation are not mentioned.

THE OPERATIVE TREATMENT OF VARICOSE VEINS.

PIERCE GOULD (*The Lancet*, April 8, 1899) reports fifty cases of Trendelenburg's operation for varicose veins. It will be remembered that this operation consists in excision between double ligatures of a short piece of the internal saphena vein in the thigh, the object of this procedure being to protect the varices from the pressure and reflux of blood from the common femoral vein and venous trunks above it.

In any attempt to appreciate the value of this operation, an account of its immediate results up to the time the patient leaves the surgeon's hands is of no value. It is all-important to learn the later history of the patient. This Gould has been able to do in thirty-nine out of the fifty cases, and personally has seen twenty-five of them. In no single instance did the operation fail to relieve the patient of all pain, and it was invariably followed by a marked, often a very marked, shrinking of the dilated veins, sometimes to quite their normal size, in others to just short of that. This shrinkage may progress for many months. In no case did thrombosis develop above the ligature. The patients are usually kept in bed but a week.

One of the most troublesome complications of varicose veins is aseptic thrombosis; it is sometimes very painful, and is not free from danger to life from embolism, and the course of the disease under the common palliative treatment is often exceedingly slow and not infrequently followed by relapse. Under these circumstances it is reasonable to try whether surgery does not afford a better means of dealing with these cases than the older methods of rest, local sedatives, moderate diet, alkalines, salines, and great patience. Thus Gould has treated two cases of aseptic thrombosis by excision of the thrombosed portion of the vein and immediate closure of the wound. Union by first intention was obtained.

EXPLORATORY OPERATIONS UPON THE STOMACH FOR OBSCURE AND OBSTINATE GASTRIC SYMPTOMS.

Under this title MAYLARD (*The Lancet*, April 8, 1899) holds that there should be less hesitation than is at present exhibited in opening the peritoneum and subjecting the stomach to a thorough manual exploration in cases characterized by obstinate gastric symptoms. He quotes Kocher to the effect that he has regretted delay in operating often; operating, never. A reference is made to two cases — one reported by Bradford, the other by Treves—in which, though nothing definite was found, yet immediately a marked relief was obtained in each case. Robson, acting on lines somewhat similar, discovered by exploratory laparotomy that certain obscure gastric symptoms were due to adhesions involving some part of the external gastric apparatus, the separation of which resulted

in complete relief. He also showed that exploratory gastric operations have been the means of revealing obstruction at the pylorus as the cause of dilated stomach, and that the treatment of this obstruction has led to the disappearance of all symptoms of tetany from which the patient had suffered.

As a case in point, Maylard quotes the following experience: The patient, fifty-five years old, three years before he came under observation began to suffer from pain in his back, which soon shifted to the epigastrium, where it remained continuously. It was burning and gnawing in character, and located just below the ensiform cartilage. It was somewhat aggravated by hunger, and was frequently relieved by the ingestion of food. He never vomited, but was flatulent. There was pain on pressure over the affected area, and the stomach was apparently dilated. There was also a mitral murmur. No improvement followed medical treatment and lavage. Laparotomy was performed; the stomach was freely withdrawn through the parietal wound, and its anterior wall was incised. Nothing abnormal could be found. The opening in the stomach was then closed, and the anterior wall was tucked in and secured by sutures for the purpose of lessening the dilatation. The next day the patient vomited two and a half pints of pure blood. The wound was reopened, and a small bleeding vein was found at the margin of the incision. Three pints of hot normal saline solution was injected into the median cephalic vein; the stomach was freely washed out, much blood-clot being thus removed.

The patient completely recovered, gaining weight, and remaining free of his pain.

CONTRAINDICATIONS TO PARACENTESIS IN SEROFIBRINOUS TUBERCULOUS PLEURISY.

MOLLARD (*Lyon Médical*, No. 15, 1899) strongly argues against paracentesis for relief of serofibrinous pleural effusion which is slow in being absorbed, unless the pressure exerted by such an effusion is immediately threatening to life. He states that clinical experience, pathological anatomy, bacteriology, all teach that intervention under such circumstances directly interferes with nature's method of accomplishing a cure. Moreover, by tearing the new membrane which has been formed, and by wounding blood-vessels and lymphatics, it opens the entire system to infection. The serum has a distinct inhibiting effect upon the bacilli, and the false membrane formed serves to limit them until their toxic and multiplying powers have been destroyed. When this has been accomplished, in the vast majority of cases the serous effusion will be absorbed.

THE PRESENT POSITION OF THE PESSARY IN GYNECOLOGICAL PRACTICE.

BALLANTYNE (*Scottish Medical and Surgical Journal*, April, 1899) thus sums up the advantages of the pessary in gynecology:

1. All the strong supporters of treatment by pessaries emphasize their convenience. An occasional visit to a gynecologist, occupying probably only a few minutes, frequent vaginal douching, which possibly would be required anyhow, a transitory feeling of uneasiness in the pelvis when the pessary does not exactly fit or has been worn rather too long, cannot surely be regarded as sufficient reasons for advising a patient to face the ordeal of a plastic operation with all its inconvenience, its expense, and its enforced confinement to bed for a longer or shorter time. As Mundé puts it, "Not every patient who has a displacement of the uterus wishes to be operated upon for its permanent cure." Further, there are the cases in which it is impossible for the patient, either on account of her advanced age or her occupation, to have any operation at all; in such instances the pessary becomes a great convenience.

2. The opinion of all who make use of pessaries in their gynecological practice is that they are undoubtedly effective in relieving symptoms. Some go further and state that they in many cases produce a permanent cure in a longer or shorter time. Mundé, speaking of recent displacements, affirms that in about twelve cases in a thousand the pessary may in a year or two be no longer needed. He says further: "No tampons, no astringents, no massage, no electricity, no posture, no baths, no vaginal douches, will, in my experience, take the place of a properly fitted vaginal pessary." Herman, writing on prolapse, says that "if a vaginal pessary is retained and keeps up the uterus, relief is almost complete and greater than can be obtained in any other way;" and in referring to chronic retroflexion, he believes that only about one case in fifty calls for any other methods of treatment than that by pessaries. Lewers goes further than most of the advocates of the preferential treatment of displacements by pessaries, for he affirms

in relation to prolapse that "no plastic operation will cure cases of procidentia; no matter how complete the success of the operation may appear at the time, unless the patient wears a pessary the displacement will most probably return as badly as ever. If, however, she wears a ring, a permanent condition of comfort is obtained." Macnaughton-Jones has no doubt as to the efficiency of the well adjusted pessary, for he asserts that "in all forms of displacement where its employment is clearly indicated, it generally gives material relief." The advocates of pessaries may differ in their views as to the manner in which these instruments relieve symptoms, but that they do relieve symptoms all are agreed. That they are an effective means of treating displacements is, therefore, urged as their great advantage.

3. Most gynecologists freely admit that the ordinary vaginal pessaries used with ordinary care are perfectly safe; but those who strongly advocate their use claim that even intra-uterine stems and instruments of the Zwanck type are quite innocuous. The bad results that are occasionally reported are ascribed by these pessary partisans to want of care in adapting the pessary to the person, and to absence of precautions on the part of the patient in wearing it. Several writers state that pessaries of the nature of the Zwanck type must be taken out every night by the woman herself and replaced in the morning, and they do not apparently fear that she may be unable or unwilling to do so, nor do they dread any evil results from her want of knowledge of the anatomy of the parts. All these authors emphasize the safety of the pessary as contrasted with the danger of other, and especially of surgical, methods of treating displacements; and to them the remark made by Lawson Tait that he is certain that removal of the ovaries is "a far safer proceeding than the employment of intra-uterine stems, and has the merit of being effectual," must appear extraordinary indeed.

The alternative kinds of treatment in incomplete prolapse, with a certain degree of perineal efficiency, may be stated to be: (1) The purely palliative plugging of the vaginal vault with glycerin or ichthyol tampons, with or without rest and douching; (2) uterine curettage to diminish the uterine subinvolution and restore tone; (3) anterior colporrhaphy, especially when there is marked cystocele; (4) perineorrhaphy even when the perineum is not markedly defective; (5) ventrofixation of the uterus (not often); and (6) Alexander's operation (not often).

In cases of complete prolapse, where the perineum has almost or entirely lost its power of retaining a pessary in the vagina, the only form of support which is possible is the stem, with an abdominal belt and outside straps and perineal pad. The only cases in which most gynecologists would countenance the wearing of such supports are in old women who either refuse or who are too weak to be subjected to operative procedures, or in younger women who absolutely decline to be relieved in any other way. The most hopeful view that one can take of treatment by pessaries in these cases is that by their means a complete prolapse is turned into an incomplete one, and that in time it may be possible to replace the stem and outside straps by a single vaginal pessary. The alternative procedures to pessaries in the treatment of complete prolapse are: (1) perineorrhaphy; (2) colporrhaphy, anterior or posterior, or both, with or without perineorrhaphy; (3) ventrofixation of the uterus; (4) Alexander's operation; and (5) vaginal hysterectomy.

Most authors are now agreed that to try to treat anteversion of the uterus by pessaries is to use means which are inadequate to remedy a condition which is not itself productive of trouble. If, however, an enlarged, chronically inflamed uterus is more or less fixed in an anteverted position, then symptoms arise which are due immediately to the metritis. Consequently most gynecologists treat the metritis and the metritis only, and in doing so do not invoke the help of pessaries; but some think that the insertion of an indifferent pessary, such as the ring, is of value in hastening the cure by raising the uterus.

Most authorities are now agreed that a congenitally fixed and flexed uterus is not amenable to treatment by pessaries. Another point about which there seems to be general agreement is that no vaginal pessary will straighten an anteflexed uterus even when the uterus is fairly movable. The question in anteflexion and its treatment by pessaries has therefore narrowed itself down to the justifiability of employing intra-uterine stem pessaries. Even strong advocates of treatment by mechanical supports are in doubt whether the risks attendant upon wearing intra-uterine stems do not more than counterbalance any good effects which may arise therefrom. Various devices have been adopted to render intra-uterine stems innocuous, and

while it cannot be said that any one has succeeded, it may be admitted that the entirely intra-uterine (*i.e.*, without a vaginal portion) pessary recently brought forward by Lefour comes nearest the standard. It has been not infrequently claimed by the advocates of intra-uterine stems that menstruation, scanty and accompanied by great pain before the introduction of the stem, becomes profuse and painless after it has been placed in the uterus; but opponents of the stem point out that the pessary in such cases, instead of draining away discharge, has really produced the discharge by setting up suppuration, and has led to lesions that take months to heal.

While pessaries are coming to be looked upon as unnecessary and ineffective in anteversions, and as temporary and palliative props in prolapsus, it is evident that the mind of the profession is far from made up on the question of their use in retroversions of the uterus. J. C. Webster divides cases of retroversion into seven classes and gives special directions for the management of each.

In retroversion with a uterus fixed by peritonitic adhesions no pessary is to be used.

In retroversion with a freely movable uterus, not enlarged, and with no pelvic trouble, there is no necessity for reposition and the pessary, but if there is bronchitis or the lifting of weights, then it is well to keep the uterus anteverted by a pessary.

In retroversion of a freely movable puerperal uterus with no pelvic trouble, there is no need for a pessary, but if there are to be strains and lifting weights, then use a Hodge or Smith pessary.

In retroversion of the pregnant uterus use a Hodge or Smith up till the fourth month.

In retroversion with a movable uterus, with pelvic symptoms, but with neither ovary in the pouch of Douglas, use the Hodge or Smith.

In retroversion of a movable uterus with pelvic symptoms, and with one or both ovaries in the pouch of Douglas, use no pessary till the ovarian inflammation has been diminished by douching and plugging, then use first the ring, and afterwards the soft Hodge or Smith or Thomas.

In retroversion of a movable uterus with pelvic symptoms and old posterior perimetritis or cellulitis, follow much the same lines as those in the preceding rule.

SENILE ENDOMETRITIS.

LORAIN (*Annals of Gynecology and Pediatry*, May, 1899; quoted from *La Revue Médicale*) states that this disease is comparatively rare, forming a little over seven per cent of all cases of endometritis. One of the first symptoms of senile endometritis is a semipurulent yellow or greenish discharge, often streaked with blood, and occasionally offensive; the discharge is sometimes continuous, sometimes intermittent. Metrorrhagia is not rare, and is occasionally so marked as to give rise to what is described as the hemorrhagic form of the disease; the loss of blood is, however, rarely great, and never by itself constitutes a grave symptom.

The disease is usually but slightly painful, the subjective symptoms being limited to a feeling of weight in the hypogastrium and to sacralgia.

Sometimes, however, the patient complains of smarting and itching about the vulva; in most cases this is due to the irritation of the discharge, but occasionally no signs of inflammation are present. Frequency of micturition and pain after the act are sometimes observed.

There is little tendency for the inflammation to spread to the Fallopian tubes, but it does occasionally take place. Perimetritis and parametritis are practically never found.

The uterus is usually found to be of normal size, mobile, but slightly tender; the speculum reveals a cervix more or less inflamed, of a deep-red color, swollen, and smooth. Cervical erosion is rare.

The course of the disease is essentially a chronic one; the symptoms become more marked after exertion and fatigue; but the acute or subacute exacerbations found in endometritis anterior to the menopause, and probably due to menstrual congestion, are not found in senile endometritis.

The general condition of the patient is always to some extent affected by the disease; loss of flesh, anemia, dyspeptic troubles, occasionally rigors and night sweats, and, in fact, a condition of cachexia more or less marked, are found.

The diagnosis of senile endometritis is of the greatest importance, owing to the resemblance its symptoms bear to those of cancer of the body of the uterus. The treatment depends essentially on an accurate differential diagnosis. If the disease is merely endometritis, medical treatment will always guarantee a cure. On the other hand, if the disease is cancer of the body, hysterectomy, at least in the early stages, is the only rational treatment, and the prognosis becomes grave, not only by reason of the dangers of

the operation itself, but also because of the grave risk of a recurrence of the disease.

Treatment should have two ends in view: (1) To allow of the free escape of the secretions of the uterine mucous membrane; (2) the application of antiseptics to the interior of the uterus.

The free escape of the contents of the uterus is of special importance, since, as long as these are pent up in its cavity, no cure can be expected. Generally speaking, the dilatation of the cervical canal is best effected by Hegar's dilators; but cases arise in which the stenosis of the cervical canal is so advanced that the smallest dilator cannot be introduced; in such cases dilatation must be obtained with laminaria tents. It is generally sufficient when the passage of Hegar's No. 7 or No. 8 can be effected, but this will often require two or three sittings at intervals of twenty-four or forty-eight hours. After dilatation, one of the following solutions should be applied to the cavity of the uterus:

Creosote,
Glycerin,
Alcohol, equal parts of each.

Or,

Ichthyol, 10 parts;
Glycerin, 40 parts.

Or,

Pure tincture of iodine.

These are introduced into the uterus by means of a flexible sound, the last two inches of which is surrounded by cotton-wool; this is then soaked in the solution and applied to the whole surface of the uterine mucous membrane.

The treatment should be renewed two or three times a week, and in the intervals a drain of antiseptic gauze should be left in the uterus, a tampon of similar gauze being left in the vagina.

As the cervical canal tends to contract again between the dressings, it will be found necessary to further dilate it from time to time.

The duration of treatment carried out according to the above principles will be found to be approximately from three to four weeks.

TOXIC INFLUENCE OF CHLOROFORM.

SCHENK (*Centralblatt f. Chirurgie*, No. 19, 1899; quoted from *Zeitschrift f. Heilkunde*) reports the case of a woman subjected to a half-hour's narcosis for extirpation of the uterus, an ovarian cyst, and a right-sided pyosalpinx, who three days afterwards died of cardiac failure and renal affection. Section showed a well marked fatty degeneration of the heart, liver, and kidneys. The author ascribes this degeneration to the action of the chloroform upon organs previously weakened by septic fever. These findings correspond to those frequently observed in patients who die a few days after the administration of chloroform. Schenk conducted an experimental investigation upon monkeys and dogs for the purpose of finding out how soon after narcosis fatty degeneration became demonstrable in the organs, and when it disappeared and there was a return to the normal. He came to the conclusion that the fat which appeared a few days after chloroform narcosis did not disappear for days or even weeks; that even after ether narcosis fatty degeneration was to be noted in the liver, although it was less marked than when chloroform had been used. Therefore, he warns against the use of chloroform excepting when it is absolutely necessary, and especially he objects to the practice common in gynecological clinics of narcotizing individual patients frequently, at short intervals, for the purpose of establishing a positive diagnosis. It is obvious that if a single chloroformization causes a moderate degree of fatty degeneration which persists for some time, a second anesthetization may increase this change to a dangerous degree.

THE TREATMENT OF TUBERCULOSIS OF THE TESTICLE.

BERGER (*Journal des Praticiens*, No. 16, 1899) states that castration should be employed in beginning tuberculosis when the lesions are rapidly progressing and unilateral; that involvement of the deferent canal and even the seminal vesicle is not a contraindication to the operation; that this procedure should be completed by extirpation of the entire deferent canal even when this seems perfectly healthy. If the seminal vesicle participates in the tuberculous degeneration, it can be extirpated either by the inguinal route, or better still, by the perineal incision. In all cases where a tuberculous testicle is one of the principal causes of alteration in the general health, of pain, or of general weakness, even though there exist tuberculous lesions in other parts of the body, castration should be performed—not, however, if both testicles are involved.

CÆSARIAN SECTION BY MEANS OF A TRANSVERSE INCISION OF THE FUNDUS.

THUMIN (*Centralblatt f. Gynäkologie*, No. 19, 1899) reports a case of Cæsarian section in which after exposure of the uterus its cavity was opened by a transverse incision, carried across the fundus from the insertion of one tube to that of the tube of the opposite side. The delivery of the child with the placenta, he states, is extremely easy, and the bleeding from the incision very slight. After contraction of the uterus the wound became, as Fritsch states, surprisingly small. Silk sutures carried through the entire thickness of the uterine wall, and a serous membrane suture of very fine thread, completely closed this wound. Braitenberg has collected fifteen cases in which this transverse incision was employed, and reports the sixteenth himself. The chief advantages claimed for this incision are that it spares the lower uterine segment, and that it enables the fetus more readily to be delivered.

OLD DISLOCATIONS OF THE SHOULDER.

DUPLAY (*Le Progrès Médicale*, March 4, 1899; quoted from the *Montreal Medical Journal*, May, 1899) deals especially with old dislocations. How are they to be treated? He would classify those of six weeks' standing as old. In recent dislocations the difficulties occasionally experienced in effecting reduction are numerous. The head of the humerus may have traversed an intermuscular space. More frequently the ligament offers an opposition almost impossible to overcome, or the capsule may be in the way of the return of the head. If the great tuberosity is torn off the difficulties are still greater.

In old dislocations the difficulties arise from changes in the muscles, ligaments, and bones.

The anterior part of the capsule retracts and the posterior part covering the glenoid cavity forms adhesions with it which oppose the replacement of the head. The tuberosity when torn off may lie against the glenoid, become engaged in callus, and thus form an obstruction. Again, a new pseudocapsule gradually forms. Malgaine has drawn attention to the formation of fibrous bands adherent sometimes to the vessels; and the result of tearing these vessels by violent manipulation is easily understood.

The muscles become displaced and form adhesions in their new situation, and the long head of the biceps is especially mentioned as obstructing in this way.

The glenoid contracts and may form a part of the new articular cavity. The head of the humerus becomes altered in shape and occasionally gives origin to bony overgrowth.

The ideal treatment is to effect reduction, as in recent cases. Unfortunately, this is often impossible. Kocher has frequently succeeded by his method after the lapse of three or four months, although dislocations eight years old are said to have been reduced by manipulations. Failing reduction by manipulation, M. Duplay recommends incision and reduction after loosening the head of the bone, providing it can be done without too great a division of muscles and adhesions. Otherwise a resection of the head of the bone gives a very good result.

VACCINATION FOR HYDROPHOBIA AT LILLE.

From the 12th of February, 1895, to the 1st of January, 1899, 796 persons who had been bitten were treated at the Pasteur Institute at Lille. Two hundred and thirty-three were bitten by animals in which the presence of hydrophobia was proven by inoculation; 325 were bitten by animals in which hydrophobia was diagnosed by veterinary surgeons; finally, 234 were bitten by animals in which hydrophobia was simply suspected. The average length of the treatment was eighteen days. Five people died of hydrophobia in spite of the treatment, giving a total mortality of 0.62 per cent. There were 771 dog-bites, 22 cat-bites, 2 horse-bites, and 1 ass-bite.—*Lyon Médical*, No. 18, 1899.

THE TREATMENT OF HEMORRHOIDS.

SCHWARTZ (*Journal des Praticiens*, No. 16, 1899) states that the indications for operation in cases of hemorrhoids are: bleeding, pain, an abundant mucous discharge, habitual procidentia, and ulceration. Operation is not advisable when the hemorrhoids are painless and uncomplicated, and when they are symptomatic of lesions of the pelvis or viscera. Moreover, when they are accompanied by regular bleeding, and occur in gouty patients without apparently influencing the general health, the general treatment so well known is advised. As to the operative treatment, the value of dilatation

is again insisted upon. Cauterization is considered *par excellence* the best method. Each small tumor is seized in forceps and cut away with a hot iron. This, it is stated, can be done painlessly after first freezing the mass which has been seized, by chloride of ethyl. The iron should be heated only to a dull red, as otherwise it will set fire to the ethyl vapor.

RECTAL INJECTIONS OF SALINE SOLUTIONS IN THE TREATMENT OF HEMORRHAGE, SHOCK, AND INFECTIONS.

LÉPINE (*Lyon Médical*, No. 18, 1899) closes a thesis on this subject with the following conclusions: There are two classes of phenomena dependent upon such injections. The first are physical or chemical, and correspond to those incident to blood transfusion, or the transfusion of artificial serum. The second are purely physiological and are not clearly understood. Intravenous and subcutaneous injections are not absolutely free of danger, and are somewhat difficult of application. Absorption of the saline solutions by the rectal mucous membrane is as easy and rapid as that which takes place when the solutions are injected beneath the skin. The therapeutic effect of the rectal injections is precisely the same as that of subcutaneous injections. The strength of the solution varies according to the indications.

THE PREVENTION OF POSTOPERATIVE THROMBOSIS IN VEINS OF THE LOWER EXTREMITY.

LENNANDER (*Centralblatt für Chirurgie*, No. 19, 1899), in commenting upon the frequency of the so-called milk-leg after all abdominal operations, states that he has had this complication occur in five cases of appendicitis operated on in the interval between the attacks. He notes that it is very commonly observed after all abdominal operations and after herniotomy, even when the wounds run a perfectly aseptic course, developing not infrequently two or three weeks from the day of operation. Thinking that perhaps compression exerted upon the femoral or long saphenous vein, due to the abdominal bandage, might have caused this complication, in some of these cases Lennander so placed his dressings that such pressure could not possibly be exerted, yet in spite of this thrombosis developed, sometimes involving not only the long saphenous and the femoral veins, but even the external iliac.

In view of the long confinement to bed necessitated by this complication, of the often permanent partial disability, and of the serious danger to life from secondary pulmonary embolus, a careful study was made as to the means by which this complication might be prevented. As to its cause, there can be little doubt that suppuration in or about the wound is a predisposing factor—not, however, a necessary one, since the complication develops after operations which run an absolutely sterile course. Toxemia, of intestinal origin, is no doubt a predisposing factor, yet the direct relation in individual cases often cannot be traced. Ziegler states that the two causes of thrombosis are a slowing of the circulation, and local alterations in the walls of the blood-vessels. Slowing of the circulation is often due to weakness in the heart's action, a common accompaniment of abdominal diseases requiring operation. It is further accentuated by meteorism, which materially interferes with the aspirating influence exerted by the normal chest upon the venous circulation. Local alteration of the blood-vessels, such as endophlebitis and fatty degeneration of the endothelium, is often primary and of local origin; often secondary to infection, or autotoxic alterations of the blood. The primary degenerations are noted in patients who suffer from varices, or those who before operation have suffered from slight thrombosis.

Lennander noted in his series of cases that the milk-leg was seldom observed after the extremely severe and complicated laparotomies, and explains this circumstance by the fact that the after-treatment of these cases was conducted with the lower end of the bed elevated ten to twenty inches, and that into the abdominal cavity of these patients there was often injected a pint to a quart of normal salt solution. On a basis of these observations, about the middle of 1897 he adopted, as a general practice after every abdominal or hernial operation, the elevation of the foot of the bed to a height of from four to twenty inches. Patients who were healthy before operation were subjected to moderate elevation; those who had been exhausted by previous disease, who were anemic, or had previously suffered from varices, were subjected to the highest elevation. If the position became unbearable, the foot of the bed was somewhat lowered, but never to a level less than four to six inches. It was kept in this position during the entire stay of the

patient in the hospital. When the blood-pressure was low, and the heart action weak or irregular, subcutaneous injections of normal saline were given, together with the usual stimulating heart tonics. Especial care was taken that the bandage did not press upon the crural vein, and very shortly after operation passive movements and light massage of the foot and leg were practiced. The patients were then instructed to move their legs as soon as practicable. In many cases, especially those suffering from varices, an elastic bandage was applied to the legs.

Since the period when this treatment was adopted the author had but a single case of thrombosis. A young, apparently strong student was operated on because of chronic appendicitis. The wound healed promptly and without suppuration. After about two weeks thrombosis began in the right leg; it extended upward and completely blocked the femoral vein. This was the only case in which the foot of the bed had not been elevated. The author therefore holds that by elevation of the foot of the bed this troublesome complication can in nearly all cases be prevented. He recommends this same measure in the treatment of many medical affections in which, because of long confinement to bed and the absorption of toxins, there develops anemia, and blood alterations which predispose to thrombus. Thus in typhoid fever, chronic enterocolitis, and chronic peritonitis, this measure is suggested even when thrombosis has begun. Elevation of the foot of the bed is advisable, since thus the return venous circulation is hastened and extension of the thrombus is limited, as it is well known that in circulating blood the fibrin ferment is quickly destroyed.

SUBCONJUNCTIVAL INJECTIONS IN CORNEAL AND IRITIC INFLAMMATIONS.

SMYTH (*Louisville Journal of Surgery and Medicine*, May, 1899) notes that while six or seven years ago subconjunctival injections were recommended in almost every disease of the globe or its contents by many of the world's foremost ophthalmologists, there followed a reaction which condemned the method even for the conditions in which it is most useful. These injections have, however, at present found their true position in ophthalmic therapeutics, and stand as of undoubted value in chronic and relapsing infiltrative disease of the cornea, iris, and ciliary body. Subconjunctivally injected fluids, such as weak sublimate or salt solutions, produce increased lymphatic circulation in the eye, thus causing absorption of pathological products. The latest experiments in this line by Mellinger were to inject an emulsion of India ink into the anterior chambers of a rabbit, and then to inject subconjunctivally salt solution of variable strengths up to a ten-per-cent solution. He states that after six injections, preferably of the stronger solutions, the India ink had been almost entirely absorbed; while in the eye left to itself there was practically no change. The explanation of this result has been given thus: Certain crystalline substances, among which chloride of sodium stands first, withdraw water from the tissues in proportion to their molecular composition, and to the strength of the solution. If the solution is introduced beneath the conjunctiva, it enters the lymph spaces of the eye and tends to extract an excess of fluid from that organ. Thus is induced a more active elimination of the elements of decomposition, necessarily bringing about a more active supply of new nutritive substances from the blood, which naturally results in a more rapid reformation of the changed tissues. This action of the solution is stronger in diseased than in normal tissues.

As to the practical results, Sneller recommends these injections in scleritis; Van Moll in sclerokeratitis and parenchymatous keratitis; and Deutschmann has reported two thousand separate injections, with the conclusion that he has seen better results in parenchymatous keratitis from this than from any other method. The author quotes some illustrative cases of his own.

THE OPEN METHOD OF ADMINISTERING NITROUS OXIDE.

In an editorial upon this topic (*New York Medical Journal*, May 13, 1899) the method of administering nitrous oxide described by Dr. Flux at a meeting of the Society of Anesthetists in London is favorably commented upon. Dr. Flux discards the closed mouthpiece and uses an inhaler closely fitting the patient's face, but wide open at the top, into which the gas is allowed to fall from any simple delivery apparatus. The gas naturally falls by its own weight and has no tendency to escape upward, while the accurate adaptation of the inhaler to the face prevents its leakage downward.

By this method of administration, which

Dr. Flux had employed three hundred and fifty times, he affirms that the patient experiences absolutely no discomfort, since he is subjected neither to breathing into an air-excluding face-piece nor to the high pressure at which the gas issues from the cylinder into the inhaler. It is inhaled comfortably at the ordinary atmospheric pressure. Free access of air to the patient is obtained, and the gas is admitted into the inspired air in place of the air being admitted to the inspired gas, as is the case in the ordinary closed method. The gas only needs to be allowed to flow during inspiration, and when once anesthesia has been induced, it can be kept up indefinitely by allowing the patient an occasional breath of gas. Moreover, as the anesthetist has the gas under complete control, he can raise and lower the degree of anesthesia as often and as quickly as desired.

Dr. Flux has had two forms of inhaler made out of clear, thin celluloid, which is light, transparent, pliable, non-absorbent, and easily cleansed. One form is in the shape of a cone open at both ends, for use on patients in the recumbent posture; the other is open at the top and on one side for a patient sitting down. A rubber tube capable of inflation round the face aperture insures accurate adaptation in either form.

From seven to eight gallons of gas is required to induce anesthesia in an adult, and from three to four gallons is required for each additional minute during which anesthesia is to be maintained.

Dr. Flux thus describes the effect of this method of administration upon the patient: "No excitement, stertor, lividity, or convulsive movement, or any sign of asphyxia, occurs throughout the administration and resulting anesthesia—in fact, the whole proceeding is characterized by extreme placidity. In no case has it been necessary to use force to restrain the patient either during or after the exhibition of the anesthetic. Even when administering with unsuitable or improvised inhalers, or under adverse or previously untried conditions, the results have been almost uniformly satisfactory."

In the discussion which ensued, Mr. Baldwain and Mr. Carter Braine, both of whom had seen Dr. Flux administer gas by this method, and the latter of whom had had it tried upon himself, bore testimony to the efficiency of the method. The latter gentleman stated that so insensible was the change when he saw Dr. Flux administer the gas to patients for operation at the Dental Hospital of London, that although he watched the patients very carefully, he was unable to tell when they were anesthetized. They appeared simply to drop off into a normal sleep. For himself, he had taken gas many times, but never so comfortably as in this instance. He breathed perfectly naturally, and did not seem to be taking gas.

A NEW METHOD OF REDUCTION IN SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

HUTCHINSON and BARNARD (*The Lancet*, May 13, 1899), in December of last year, read a paper upon the above subject, the main contention of which was the value of full flexion of the knee in effecting reduction, and reported three added cases of this injury, with skiagraph pictures showing how completely reduction is effected by this position. Of the sixteen cases of which they have personal knowledge, not less than seven occurred through hanging on behind carts, and the leg becoming entangled in the wheel; in four the separated epiphysis was a part of the general smash due to a lift or railway accident; in three it was due to direct violence, such as the passage of a wheel over the knee; in one it was due to placing the leg up to the knee in the gap between the shafts and the cart and then falling forward; whilst in the last case the injury was inflicted while playing a game well known to schoolboys, in which one boy bends down, supporting himself against a wall, whilst the others leap upon his back and endeavor to break him down. The patient while supporting three boys upon his back was struck upon the knee by the fourth, when his knee gave way, bending backward. Forcible hyperextension of the knee is thus nearly always the cause, and hence if displacement occurs, it is as constantly a forward one of the epiphysis.

The difficulty experienced in trying to replace the epiphysis by direct pressure upon it whilst traction is made in the length of the limb is explained as follows: The stripped-up periosteum is attached to the anterior edge of the epiphysis. The posterior ligament, the lateral ligament, and the crucial ligament, with the two heads of the gastrocnemius, are attached to the posterior half of the epiphysis and behind its axis of rotation. After the epiphysis is torn off, if traction be made in the line of the limb, the epiphysis being attached by periosteum in front and pulled on by ligaments and muscles

behind will rotate on its axis so as to turn its articular surfaces directly forwards, and this is a position in which no amount of direct pressure will replace the epiphysis upon the end of the diaphysis. It is equally clear that if the direction of traction be gradually inclined backwards until the pull is at last at right angles to the axis of the shafts of the femur, the epiphysis will be drawn across the fractured surface of the diaphysis by the pull of the ligaments attached to its posterior half until the band of periosteum attached to its anterior edge checks this backward movement by coming in contact with the anterior surface of the femur.

A method of reduction was devised to make the epiphysis retrace its step backwards, to apply the separated periosteum to the anterior surface of the femur, to withdraw the end of the diaphysis from the popliteal space; and when these objects have been attained, so to fix the limb that the displacement could not recur. The method is as follows: Under complete anesthesia an assistant makes steady but strong traction upon the tibia in the line of the limb. This overcomes the upward pull of the quadriceps extensor and brings the epiphysis down to the line of the separation. The operator then clasps his hands beneath the lower part of the thigh and draws it steadily upwards, gradually flexing completely the knee and hip-joint, whilst the assistant still keeps up the traction on the leg. It will be seen that this maneuver causes the epiphysis to move back upon the fractured surface of the diaphysis until it has reached its normal position and further movement is prevented by the periosteum coming into tight contact with the anterior surface of the femur. A bandage is then applied around the thigh and ankle, fixing the knee at an angle of about 60 degrees. Complete flexion—*i.e.*, heel on buttock—was found in the last case to be unnecessary, and the wider angle is more comfortable. The limb is laid on its outer side on a pillow, and an ice-bag can conveniently rest upon the front of the knee to limit effusion. The advantages of maintaining this position for a fortnight are that the quadriceps exerts tension in the length of the bone, keeping the surfaces in close apposition and squeezing out effused blood, and that the tendon of the quadriceps and the patella fit into the groove between the two condyles and prevent lateral displacement; and since the tendon of this muscle changes its direction at a right angle to be inserted into the tubercle of the tibia, it prevents recurrence of the forward displacement of the epiphysis. The flexed position also removes the sharp end of the diaphysis as far as possible from the popliteal space and relaxes the skin, vessels, and nerves completely. The articular surfaces of the epiphysis are subcutaneous and uncovered, so that their position can at any moment be observed, and the dorsalis pedis and posterior tibial arteries are not concealed by any splint or apparatus. After fourteen days the limb can be extended, under gas if necessary, and put up in plaster in a position about 30 degrees short of the straight line. The patient can then get about on crutches.

In a previous paper the authors recommended that extension should be carried out slowly upon a MacIntyre splint and should occupy a fortnight, but as a rule they have found this caution unnecessary. The plaster remains on for from a fortnight to three weeks, and a little massage restores the movements of the joint.

The authors closed their paper with the following conclusions:

1. That separation of the lower epiphysis of the femur is a very serious injury and is attended when compound by a high mortality.

2. That in the extended position of the knee, even with an anesthetic, reduction of the fragment is very difficult if not impossible.

3. That when the epiphysis is not reduced, the patient is laid up for about three months and is lame for about six months, whilst the end of the diaphysis frequently requires removal by operation. Shortening of the limb and secondary curves in the spine always follow.

4. Nevertheless, the ultimate result in most cases that recover at all is good. The articular surface of the femur gradually grows into a useful position.

5. That with the method of full flexion reduction is always easy, the treatment is short, and it is the rule to obtain perfect movement in the knee without shortening or deformity of the leg.

DEATHS AFTER CELIOTOMY.

SMYLY (*Medical Press and Circular*, April 26, 1899), under this title, classes as the causes of death after celiotomy, shock, hemorrhage, ileus, uremia, inanition, tetanus, embolism, and sepsis.

Under shock the effect of exposure of the

intestines to air is considered, and the need of an absolute hemostasis pointed out. As a preventive treatment the author suggests that, in weak and debilitated patients with weak hearts and rapid pulse, operation should be if possible postponed or abandoned. He advocates the injection of sterilized salt solution, and the means customarily employed in hospital practice. Saline infusion is, however, to be used only when there has been marked loss of blood.

Ileus, if cases of paralysis due to peritonitis are excluded, is generally due to adhesion of intestine to raw surfaces. A stormy onset is exceptional. The obstruction is often incomplete, and the bowels may be evacuated at intervals, and yet the patient may be lost. Washing out of the stomach and deep enemata are suggested. When these measures fail the abdomen should be reopened without further loss of time. As to prophylactic measures Trendelenburg's position is one of the most important, since the bowels are out of the way and are not disturbed. Moreover, all raw surfaces should be covered with peritoneum. Coating raw surfaces with collodion has been recommended, and Martin, of Berlin, introduces a sponge soaked in sterilized oil, but most operators attach more importance to drawing down the omentum between the abdominal wound and the intestines, and as far as possible covering all raw surfaces with peritoneum.

Thrombosis is a potential embolism, and as it may be set free even at a late period, the patient should be cautioned against violent efforts or straining for some time after an abdominal operation.

Peritonitis, when this develops, should be treated by free purgation. This inflammation is often aseptic.

FOUR CASES OF INTUSSUSCEPTION.

MORISON (*Medical Press and Circular*, April 26, 1899) reports the case of a child (female) three months old, who for four hours had been suffering from intermittent attacks of crying, accompanied by diarrhea. The stools were mucoid and tinged with blood. The child had been constipated since birth. When first seen it was sleeping restlessly on its mother's knee, but was roused at intervals of ten or fifteen minutes apparently with griping pain in the bowels. Paroxysms were ushered in by a shriek. The legs were drawn up, and the child writhed about in agony. At the same time the bowels acted. The child also vomited frequently. No abdominal tumor could be felt. A large injection was tried, apparently without good result. Operation was refused. The patient was kept mildly under the influence of morphine for a week. On the fifth day a sausage-shaped mass could be felt along the course of the ascending colon. During the second week the symptoms remained the same, excepting that vomiting was less frequent. The child emaciated rapidly and progressively. Sixteen days from the date the child was first seen there was passed per rectum a twelve-inch mass of intestine. A year later the baby was perfectly strong and healthy.

The second case (female) was eleven months old, and when first seen had been vomiting constantly for ten days. The child sustained a fall, and the next day suddenly developed violent vomiting and screeching, passing in a short time per rectum a large quantity of blood. A sausage-shaped swelling was distinctly felt in the area of the descending colon, and per rectum a mass could be palpated, extending down to within an inch of the anus. The child died in a few hours. A post-mortem examination showed the peritoneal cavity to be flooded with intestinal contents. The lesion consisted of an intussusception of the ileum through the ileocæcal valve. This had been forced in through the ascending into the transverse and descending portion of the colon, sigmoid flexure, and rectum. At the splenic flexure the intussuscipiens had been perforated and the mucous membrane of the ascending colon projected through the opening. The invaginated small intestine reached to within an inch of the anal orifice.

The third case (male) was three years old. On the morning following a dose of castor oil the child was seized with severe abdominal pain, accompanied by diarrhea and sickness. In twenty-four hours the motions became mucoid and contained a considerable quantity of blood. In the line of the descending colon a sausage-shaped mass could be felt extending from the costal margin to the left iliac fossa. The anus was patulous, but on introducing the finger a body resembling a soft cervix and os uteri could be felt. Large enemata were given, under chloroform, both of water and air; these failed, though they were tried repeatedly. Operation was finally performed three days after the beginning of the symptoms. There were no adhesions, and the invagination was gradually reduced. The splenic flexure had become

invaginated into the descending colon. The patient died within twenty-four hours.

The fourth patient (male), five years old, after some imprudence in diet was taken with very severe pain in the bowels and vomiting. Two and a half hours later he was pale and pinched in appearance, with a rapid, weak pulse. Between the intervals of pain he lay exhausted, and as soon as pain came on he cried out and rolled about the bed. Each paroxysm of pain was followed by an evacuation of mucus and a little blood. The abdomen on examination was quite flaccid, nor was there tenderness except in the region of the right iliac fossa, where a small, elongated, very tender mass could be felt. Insufflation, massage, and large enemata of hot water were tried in vain. Operation was then performed. The intussusception was of the iliocæcal variety. About a foot of the gut was readily released. The mesentery of the intussusception was then shortened by inserting a few fine silk sutures parallel with the gut, for the purpose of preventing a recurrence. The patient made an uninterrupted recovery.

THE CONDITIONS OF SUCCESSFUL OPERATION IN EPILEPSY.

KOCHER (quoted in *Medical Press and Circular*, April 26, 1899), in a paper on this subject, thought pessimism in regard to operation for epilepsy had been carried too far. From recent experience he had concluded that the method of operation practiced had not been the right one. V. Bergmann had introduced an improvement by removing the cortical portion from which the epilepsy started. About ten per cent were cured in this way. Since the eighties the speaker had operated after a theory of his own, and had obtained six complete cures in traumatic epilepsy. He had collected 175 cases of operation, only calling those cures that remained well at the end of three years, although epilepsy sometimes returned even later than that. In this investigation he was able to determine that that treatment was successful which attacked the cause of the epilepsy direct. After extraction of foreign bodies from the skull, and especially from the brain, eighty-eight per cent of recoveries took place. In the latter cases, where the dura was incised, the results were the best. He assumed that an essential cause of the occurrence of attacks was tension, which was relieved by incision of the dura. Perhaps this reduction of tension was the factor in these cases that had been cured after incision of the cortical center, and also in those cures in which the center could not be determined by electricity.

In the author's successful cases the covering over the opening had remained soft, so that "giving" could take place on pressure, whilst in the unsuccessful ones the covering had become bony or at least of tense connective tissue. If the principal factor of the attack was assumed to be a cicatrix or adhesions, operations should not be performed, as a cicatrix was always left by them. But these need not be feared. Aseptic soft cicatrices, even when they projected into the brain, almost never caused epilepsy. Guinea-pigs could be made epileptic by a simple blow on the head, and in these cases the blood-pressure was increased fourfold. If the animals were then operated on and a lateral ventricle opened, the epilepsy ceased. An etiological connection between increased pressure and epilepsy had thus been experimentally proved. In this way cysts and collections of fluid of all kinds within the brain easily gave rise to epilepsy.

According to these views, we have first of all in our operations to remove all local irritation, such as foreign bodies, and then take measures for reducing local and general blood-pressure within the calvarium. The dura when incised should not be sutured, but should rather be excised, and the defect should not be covered by bone. In penetrating wounds of the head the damage was not caused by the opening, but by the firm closure of the skull.

Bergmann said it was yet to be determined what was the nature of epilepsy, and then there was the proposition that there was no epilepsy without spasmodic changes in the brain. This condition was congenital, and it would not be too much to say that in nine-tenths of the cases of epilepsy, whether traumatic or not, there was a hereditary tendency. If we took from the remaining tenth all the cases in which infective diseases were the cause, the remainder would be very small. Hereditary disposition could not be assumed when the attacks began after the twentieth year. As to the cases operated on, it was very difficult to determine whether they had a hereditary predisposition or not. There were two categories of causes of epilepsy: first, the supposed epileptic change in the brain, which could be treated by operation, bromides, and section of the sympathetic; and secondly, where the disease was caused by localized peripheral injury, and here we

must satisfy the *indicatio causalis*. If excision of the cortex did not always succeed, it was because general epileptic changes had already been set up in the brain. For fulfilment of the *indicatio causalis* operation should not be too long delayed. A definite judgment as to results of operation could only be given after they had been performed.

ON THE USE OF ANTISTREPTOCOCCIC SERUM IN INFECTIONS BY THE STREPTOCOCCUS.

BRISTOW (*Medical News*, May 6, 1899), after a brief review of the theory of serum treatment, recalls the fact that in 1895 there appeared an article by Marmorek, in which he announced that he had succeeded in producing a serum effective against the organism of erysipelas. Subsequent articles by the same investigator appeared in other journals, in which he detailed the results of his work in erysipelas, scarlet fever, and other affections in which the streptococcus was the cause either of the disease itself, or, as in scarlet fever, of serious complications. Since then many observers all over the world have reported cases in which Marmorek's remedy against this, the most dreaded of the pyogenic organisms, has been successfully used. Other observers have reported negative results in similar cases, so that at present there is much confusion in the evidence submitted for adjudication. On the whole, however, it seems favorable and of sufficient weight to justify us in putting it to the test in suitable cases. It thus becomes the duty of those who have made use of this antitoxin to put on record their experience and conclusions with regard to its usefulness. Accordingly he submits the histories of fourteen patients classified as follows: Erysipelas, 3; streptococcic inflammations of the hand and forearm following so-called poisoned wounds, 7; streptococcic inflammation of the leg and foot, 1; suppuration of the knee-joint, 1; postoperative pneumonia, 1; acute gangrene of the foot with an ascending lymphangitis and phlebitis, 1.

The conclusions drawn from these fourteen cases, which are reported in full, are as follows: Cases of cutaneous, or so-called idiopathic, erysipelas may be quickly terminated by the early use of antistreptococcic serum, the initial dose being from ten to twenty cubic centimeters, according to the severity of the case, followed by additional doses if necessary. Rarely more than two or three injections will be required. With regard to the cases of phlegmonous inflammation, the use of the serum has seemed to prevent the extension of the infection beyond the parts first attacked, but has had little if any effect on the sepsis produced by the retained pus. In other words, the same necessity exists, whether the serum be used or not, to secure prompt drainage and the evacuation of the products of inflammation. This agrees with the experience of Marmorek himself, who in reporting ten cases of phlegmonous inflammation states that if the serum is used before the appearance of suppuration this does not occur. If foci exist, when evacuated rapid recovery ensues without extension of the inflammation. Postoperative pneumonia, unless of streptococcic origin, cannot be expected to improve under serum-therapy until we are provided with a mixed serum which shall be protective both against the streptococcus and the pneumococcus.

A complete summary of the literature on the subject shows that the serum has been used in 476 cases of erysipelas, 456 of which were reported by Marmorek himself, leaving 66 reports by other observers. Marmorek states that the average mortality of the disease in the erysipelas wards of the Paris hospitals is five per cent, whereas in a series of 306 cases, excluding three patients who died from causes unconnected with the erysipelas, the mortality when the serum was used fell to $\frac{9.7}{100}$ of one per cent; also that of the 306 cases, 141 were mild and 165 were serious. The serious cases furnished the two deaths, a rate of but 1.27 per cent, in 165 cases of grave erysipelas. All the patients whose cases have been reported by other observers, including the author's, recovered. Among these was a case occurring in an infant aged three weeks (Charrin and Rogers); another in an infant aged six weeks (Ganchex); one in a baby aged three weeks (Steele); and one in a child aged four weeks (Poliewkto). The average dose in the case of infants seems to have been about five cubic centimeters. Marmorek, in reporting a series of ninety-five cases, expressly says that the serum does not at all influence the course of the disease, which depends on the scarlatinal poison, whatever this may be, but only affects those complications due to streptococcus infection, such as the sore throat, the glandular swellings, nephritis, and otitis media. With regard to these complications, themselves often the cause of death, Marmorek makes the following statements: In nineteen cases

of scarlatinal bubo in which the serum was used, not one suppurated; albumin disappeared from the urine after one or two injections, and in four cases of suppuration from otitis media this promptly ceased after the use of the serum. The dose given ranged from ten to thirty cubic centimeters in ordinary cases, in grave cases from forty to ninety cubic centimeters.

Baginsky, in his series of forty-eight cases, makes a similar though more guarded report. Low reports the case of a child, said to be dying from scarlatina with acute hemorrhagic septicemia and otitis media, which improved at once under the administration of the serum, recovery taking place after the use of 263 cubic centimeters. On the other hand, Josias reports a series of ninety-five cases and states that the serum apparently was without effect, the mortality not being appreciably decreased. Other writers have had a somewhat similar experience. In the cases imperfectly reported by Fischer it does not appear that the serum was used for the streptococcus infection, but rather in a general way, and without avail. From the evidence at hand, weighing the reports of the different observers, it seems that benefit may be expected when the serum is used, as Marmorek directs, for the complications due to streptococcus. The scarlatinal fever itself, however, will not be influenced.

The puerperal cases merit more discussion than the limits of this paper will permit. The reports which the writer has collected include 201 cases, with a mortality of thirty-three per cent. This is not encouraging, and the opinions are conflicting. In the larger series of cases, such as that of Bar and Tissier, the mortality is much increased by including cases of patients already *in extremis* when the remedy was used. The same is true of the Philadelphia cases reported by Baldy, Hirst, Noble, and others, in which the serum was not used until the tenth or twelfth day of the disease. The dosage seems to have been small, considering the formidable nature of the infection and the extent of the tissues involved.

The protective power of this serum is low at present and varies considerably, some specimens being fourteen times the potency of others, according to Marmorek's own statement. It seems idle, therefore, to expect results from so timid a use of a relatively feeble serum. If good is to be expected from the use of the serum in this class of cases, it must be used in far larger doses than hitherto. Quantities of less than sixty cubic centimeters a day will not as a rule avail much, and much greater daily quantities may be necessary. Moreover, it must be used early in the disease, before multiple abscesses have formed in the uterine walls and septic thrombi have collected in the vessels of the pelvic structures.

What is the proper dose of the serum? This is a practical question, and at present it can only be answered by saying that too much rather than too little must be given because the serum has not as yet been standardized. An average dose is ten cubic centimeters. Twenty cubic centimeters will often be required, and daily quantities of sixty to one hundred cubic centimeters may be needed. It is possible that the varying experiences of different observers have been due to the use of serum of different degrees of strength. It is not possible to give a definite dosage until the manufacturers succeed in standardizing their products.

Aside from the occasional appearance of erythemata and urticaria, the writer does not believe that any serious risks are to be apprehended. In a series of reports of more than 1000 cases collected by the writer, the only instances in which the serum was charged with ill effects were in four or five puerperal cases.

The serum has been used in cases of so-called malignant endocarditis with success, and in the bronchopneumonia of children (forty-five cases, Marmorek) without a single death. This affection, Marmorek states, is almost always of streptococcic origin. Considering the usual mortality of the disease in children this record is noteworthy.

CLINICAL NOTES UPON THE CONTOUR AND CONSISTENCE OF A THOUSAND PROSTATE GLANDS.

FENWICK (*British Medical Journal*, p. 395, 1899; quoted in *Journal of Cutaneous and Genito-Urinary Diseases*, May, 1899), in examining the prostate, as a routine position prefers to have the patient bent at a right angle over a table or with his hands resting on a chair, with the bladder empty. Where the patient lies on his back, the prostate will be found higher up in the pelvis, and therefore not so accessible to the examining finger.

In urinary tuberculosis, in a large percentage of the cases, the examination of the epididymis and the prostate lends some aid to the diagnosis of the case. In 157 male

patients a deposit was found in the epididymis in twenty-one per cent of the cases, in twenty-four per cent in the epididymis and prostate, in three per cent in the prostate and seminal vesicle, in the prostate alone three per cent, in the prostate and bladder (the latter by the cystoscope) six per cent; so that in fifty-eight per cent of all the cases a deposit could be detected by the finger on the first visit.

The text-books are indefinite and inaccurate as to the forms which the prostate assumes in tubercle. The "shotty" prostates described by some are found in only three per cent, and are of grave import. Massive indurations of prostate and seminal vesicles described by others are found in five per cent of the cases, and generally denote septic inflammation in addition to tubercle. The vesicles may become affected before the prostate in fourteen per cent, but this is not common in the early stages.

In watching a case from year to year it will be found that the deposit passes through a variety of stages, and according to the stage, so is the character and contour of the deposit in the prostate, vesiculæ, and epididymis.

Tuberculous deposit is met with in the prostate under three clinical conditions: in young males who have noticed merely a lump in one epididymis; in young males who have symptoms similar to those produced by stone in the bladder; or in the adult male who complains of symptoms like those of stone in the kidney. In the first class the patient may present a small, painless lump in one epididymis, and in the prostate on the corresponding side a small, insensitive lump may be found near the sulcus, partly buried in the upper third of the lobe.

In the second class the patient may complain of pain at the end of the penis after urination, with undue frequency and occasional hematuria; the urine is lightish and murky from pus. By the rectum a hard knot may be found, buried in one of the lobes of the prostate, and the cystoscope will show that the bladder base is affected. The corresponding epididymis will also in time become the seat of a similar indolent nodule. Such prostatic deposits may remain indolent, or calcify, or become absorbed.

The indolent epididymal nodule may become inflamed, impetus being derived from a gonorrheal attack or trauma. The knot in the corresponding lobe of the prostate may also present a condition similar to that in the epididymis, and may project sharply into the rectum. Further, the rectal mucous membrane over it may become adherent, and then puckered, and it may soften in one spot. The inflammation may extend to the corresponding vesicle. The author is inclined to believe that inflammatory exudation tends to retard the progress of the tubercular disease.

These indolent deposits rarely suppurate of their own initiative. By the absorption of the deposits the prostatic contour and consistence are greatly altered, the lobes become flattened, the consistence leathery, and the outlines confused. A second important point is, that where tuberculous infiltration of the prostate has once occurred, even though healing takes place, the process extends by definite routes. This route generally begins in one epididymis (twenty-one per cent), then extends to the prostate, corresponding side, into the base, and around the corresponding ureteral orifice in the bladder, and then into the corresponding kidney. The route may short-circuit from epididymis to kidney. The process usually keeps to the side on which it started, though a cross-route may be taken from epididymis and prostate of one side to the opposite kidney. The route may be in the reverse direction, from kidney to bladder, to prostate and epididymis of corresponding side, or by cross-route to opposite side, or by short-circuit from kidney to epididymis.

The author strongly condemns bladder irrigation in tuberculous cases, even where there is pus in the urine, and even though there be temporary relief. The patient, in the end, pays too dearly for the temporary improvement.

GANGRENE FOLLOWING THE LOCAL APPLICATION OF CARBOLIC SOLUTIONS.

LEIPZIGER (*Virginia Medical Semi-Monthly*, April 14, 1899), after reporting a number of cases of gangrene following the use of carbolic acid, states that the consensus of opinion with reference to the use of carbolic acid solutions seems to be:

1. Long-continued use of even the weakest solutions is dangerous. (In his case the length of time was only 12 hours.)

2. Encircling the part with the dressing is given as a predisposing factor. (In his first case the finger which was not encircled also became gangrenous on the top where the dressing was applied.)

3. Idiosyncrasy is possible and quite probable.

4. The general sale of the drug should certainly be restricted.

He adds the suggestion:

5. That the use of carbolic acid solution as a dressing to injuries of the extremities be discontinued in view of the efficacy and equal cheapness of many less dangerous antiseptics.

SURGICAL TREATMENT FOR CEREBRO-SPINAL MENINGITIS.

In an editorial article (*Medical Record*, May 6, 1899) the following comment was made upon the surgical treatment of cerebrospinal meningitis, suggested no doubt by Rolleston and Allingham's successful operation.

"What has been done successfully for other intracerebral and intraspinal conditions—such as hemorrhage, effusion, cysts, tumor, etc.—it is now proposed to do in suitable cases of cerebrospinal meningitis, of which Rolleston and Allingham (*Lancet*, April 1, 1899, p. 889) report a case treated by laminectomy, incision of the dura mater in the dorsal region, and drainage, with recovery. The patient was a man twenty-four years old, who was seized with pains that became diffuse, who experienced a dull, singing sensation in his ears, with deafness, and who presented mental wandering, with an inability to reply pertinently to questions. The knee-jerks were normal; vomiting occurred, and delirium was present at night. The patient lay on his right side, with the thighs and knees flexed. The head was retracted, the muscles of the neck were rigid. There were, further, headache, tache cérébrale, occasional convergent strabismus, variation and inequality of the pupils, and horizontal nystagmus. The patient grew worse, the temperature rose, the skin became red and swollen, and coma and delirium alternated.

"As it appeared that the man would die if left alone, other treatment having failed, surgical intervention was undertaken, an incision six inches long being made over the spines of the lower dorsal vertebræ, of which the laminæ of the seventh and eighth were excised. The exposed dura bulged and was incised for about an inch in the long axis of the cord, with the escape of coagulated lymph and cerebrospinal fluid, to the amount of about three ounces. A drainage-tube was inserted, and no attempt was made to unite the incised margin of the dura mater. The skin was loosely approximated by nine sutures, and the usual antiseptic dressings were applied. Decided improvement at once ensued. There was a free discharge of clear fluid from the wound, necessitating a change of dressing twice daily. For three and a half weeks the discharge continued, being impeded from time to time as the wound healed, when the temperature would rise and the symptoms be aggravated. By the thirty-fourth day the temperature remained normal, the discharge diminishing and finally disappearing. The tube was removed on the fortieth day, and the wound was completely healed eleven days later."

THE RADICAL TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA.

REIK (*Maryland Medical Journal*, May 6, 1899) strongly advises in cases of purulent discharge from the ear that has existed for a considerable length of time the institution of a surgical treatment, if a month devoted to simple cleansing and antiseptic applications is not productive of good results.

Two methods of operating are receiving to-day a great deal of attention. The first is ossiculectomy. By removal of the malleus or incus, or what remains of them, we improve the opportunities for drainage, and in a certain number of cases may secure good results. This method is not applicable to all cases, of course, and only cures about fifty per cent of the cases in which it may be resorted to. It does not very much improve the chances of cleansing the antrum, and that is the most important point involved. It fails, then, in that it is not sufficiently radical.

About ten years ago two German surgeons, Professors Stacke and Zaufel, each acting independently of the other, suggested a much more complete and more satisfactory method of treatment, though at the same time a more severe measure. This consists in the removal of all diseased tissues and the converting of the antrum, the tympanum, and external auditory canal into one large cavity, which is to be lined by skin. Both methods accomplish the same ultimate results, and differ only in technique. Preparations for both are made in the same way. The area above and behind the auricle is shaven and thoroughly cleansed, every precaution being taken to make the operation as nearly aseptic as possible. The operation begins in the usual manner by performing a Schwartze mastoid operation; an incision, beginning at the upper border of the auricle and running down to the tip of the mastoid process, is

made through the skin, the periosteum is elevated so as to lay the whole mastoid process bare, and the auricle is pulled forward by an assistant so that the cartilaginous portion of the posterior part of the wall of the external auditory canal can be separated from the bone through its entire length. In the Schwartze-Stacke method, the removal of the bone begins at the junction of the external auditory canal and the tympanum, and the operator works out toward the antrum; but the majority of operators seem to prefer the Schwartze-Zaufel method, which begins with the usual opening into the antrum, is continued by the removal of all diseased bone in the mastoid process, and is followed by the removal of the bridge of bone between the antrum and middle ear, which forms the posterior wall of the external canal. By each method the ossicles, or such fragments of them as remain, and the tympanic membrane are removed. The next problem consists in securing a skin lining for this large cavity, and various measures have been suggested. Skin flaps may be taken from behind the auricle or from the external auditory canal, or Thiersch grafts may be used. The perforation behind the ear may or may not be closed. These are minor details, however, and can only be decided for the case in hand.

A FEW REMARKS ON THE DIAGNOSIS AND TREATMENT OF RUPTURE OF THE BLADDER.

THORNDIKE (*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1899) says that so much success has attended the suturing of bladder wounds that many operators do not hesitate to open the bladder into the peritoneal cavity in the endeavor to obtain plenty of room for suprapubic operations; and Dr. F. B. Harrington, of Boston, in an article in the *Annals of Surgery* for 1893, page 408, "On the Feasibility of Intraperitoneal Cystotomy, with Report of a Case," advocates this procedure in suprapubic operations. His method of operating is to make a long incision into the abdomen, pack off the intestines very carefully with gauze, and then having isolated the bladder, to open it freely so as to get a good view of its interior. He claims great ease of inspection as well as facility in the removal of the offending tumor, stone, or prostate. So that, in spite of the fact that a comparatively few cases of intraperitoneal rupture of the bladder have recurred after suturing of the rent, yet the experience of the last fifteen years (since Mr. Walter Rivington, surgeon to the London Hospital, laid down the rule that intraperitoneal rupture means immediate laparotomy) is such that we have come to consider this procedure as a firmly established principle of surgery. The ease with which accidental and other bladder wounds are repaired has greatly aided the establishment of such a belief.

Immediate operation, then, is the one thing which offers us hope, and is the one thing to be accomplished in as many cases as possible. Any aid to an immediate diagnosis or any formulation of operative indications which will justify immediate operation in doubtful cases is to be desired.

Now, if it invariably happened that the earliest symptoms of bladder rupture were positive enough and clear enough to show that the rent was present, and whether it was intra- or extraperitoneal, it would be clearly our duty to operate in every case. Unfortunately this is not the case, and it is by no means an uncommon occurrence that the delay believed to be necessary to make a more exact diagnosis is the deciding influence between the life and death of the patient. There can be *no* delay once a rupture of the bladder is diagnosed or even suspected. The time to operate is then and there, and the only excuse for not doing so is that the patient's condition is such that operation will surely prove fatal.

The diagnosis of intraperitoneal rupture is often easy, but can seldom be made positively and immediately without the assistance of the bladder-injection test. We may or may not have in any one case the history of injury, the initial shock, pain, frequent passage of bloody urine in small quantities, urgent and well-nigh constant desire to urinate, the empty bladder with free fluid in the peritoneal cavity, etc., etc. The point is this: there is no time for careful study and extended observation. The decision as to operation is to be made then and there, and the cases are few where such immediate operation can be fully justified without the aid of the information furnished by the injection of a measured amount of fluid into the bladder through a soft-rubber catheter, and the measuring of the amount which flows out again.

Dr. Charles K. Briddon, of New York, in a paper on "Intraperitoneal Rupture of the Bladder," published in the *Annals of Surgery*

for December, 1895, speaks of this aid to diagnosis as follows: "I regard the institution of this measure as of very doubtful utility and not free from the danger of spreading the infection over a larger area than that already involved by the existing extravasation, and it also incurs the danger of breaking up such adhesions as do occasionally limit the effusion." This criticism is perhaps a just one, but at the same time it implies that the injury is no longer a recent one at the time the test is made. It is the writer's belief that most cases of bladder injury fall into medical hands almost at once, and that, in spite of the fact that in some of the cases the serious character of the injury is masked by alcohol, or by other serious and coincident injuries, there is usually something to lead one to suspect the existence of this accident. Even the slightest suspicion should be followed by the injection test, and the question of operation settled then and there in the great majority of cases. The cases when such immediate decision can be made without the aid of this test cannot be common. The imperative necessity of such immediate decisions does not seem to require further demonstration.

It is not the purpose of the author to enumerate or to discuss individual symptoms, but let us suppose that with or without the aid of the injection test which the writer considers so essential, the diagnosis of rupture is made. More evidence still is needed if it can be obtained—*i.e.*, the knowledge of whether the rupture is extra- or intraperitoneal. The injection test may furnish this knowledge by increasing the prevesical tumor and dulness without increasing the amount of or showing the presence of free fluid in the peritoneal cavity, thus establishing the diagnosis of extraperitoneal rupture. The catheter may pass through an empty bladder and then on into another cavity containing bloody urine, thus establishing a diagnosis of extraperitoneal rupture. Occasionally, then, this immediate and accurate diagnosis can be made; more often it can be strongly suspected. Frequently it is impossible to know one way or the other, and only too often must we undertake the treatment of our case with a very imperfect knowledge of the character and location of our injury. How are we to proceed? If the rupture is known to be extraperitoneal we may drain through the perineum. That will serve for a time, perhaps, as a very inefficient drainage which may prevent any further accumulations of extravasated fluid, but will certainly prove inadequate in most cases, for the one object of the operation is the drainage of the urine already extravasated and the drainage of the bladder to prevent further extravasation. Or we may make a prevesical incision over the pubes and drain in that way. If we do we are opening up a dirty cavity full of putrefying urine just previous to opening the peritoneal cavity to search for further trouble there, and we are also contenting ourselves with draining in a very imperfect manner an extravasation of urine, of the extent of which we know little. The cases to which such prevesical drainage is applicable are those extraperitoneal ruptures where the rent is anterior and where the extravasation is also sharply limited to the space of Retzius. Unfortunately we cannot often have such accurate diagnosis at our disposal to aid in the selection of the operative procedure needed. We may make an incision into the bladder (suprapubic) and search with the finger for the seat of the injury, but this must be very uncertain and unsatisfactory in many cases, and even if the tear or tears are found, we still shall not have the information we want as to the extent and direction of the extravasation.

So that, given the doubtful cases of extraperitoneal rupture with extravasation of unknown quantity and direction, none of the above methods is adequate.

Now a word as to these extravasations: they may extend up on the anterior wall of the abdomen, down around the neck of the bladder, or down one or both sides of the pelvis, under the peritoneum. They may go in one or all of these directions, and it is more often than not impossible to tell early in the history of the case without resort to operative exploration. If this exploration is made over the pubes and an extravasation found there, it by no means follows that there is not a deep extravasation as well which suprapublic drainage alone will fail to care for. The author believes that this was the condition in one of his cases, and that a laparotomy would have developed the extent of the extravasation and made the most complete and thorough drainage possible.

Lastly comes the question of where to make the incision, and how to place the tubes for the best drainage of effusions in different parts of the pelvis. If the effusion is in front of the neck of the bladder, and the opening has been made into it by the suprapubic incision without opening the peritoneum,

the bottom of the effusion should be sought with the finger, and a drainage-tube carried down to it.

In opening the bladder for drainage in such a case it may be worth while, if there is evidence that the effusion is making its way backward, to make the lateral perineal cystotomy rather than the median, because in the lateral position the parts about the neck of the bladder are more freely opened, and if the urine finds its way in that direction, it is afforded a sufficient outlet. By the median operation, unless the incision is carried back into the prostate, there is danger that the parts behind the triangular ligament will not be thoroughly laid open, and that any urine which found its way in that direction might not freely escape.

When, as so often happens, the effusion finds its way along the loose tissue on the side of the pelvis, and, as in one case, up along the iliac vessels toward the renal region, perhaps no better incision can be chosen than that which is used for tying the common iliac vessels. In order to give the most direct drainage, and at the same time not to have any more pressure from the tube upon the iliac vessels than can be helped, the incision had better be made rather more toward the median line of the abdomen than is usually done for tying the iliac artery. In this way the tube goes down more directly, and does not make so sharp a bend where it dips into the pelvis over the vessels. If, however, the effusion has already reached up behind the peritoneum, above the brim of the pelvis, the incision must be made further out near the anterior superior spine of the ilium in order to give the best drainage. The finger introduced from this region can penetrate quite readily over the brim of the pelvis, and well down behind the bladder, while the peritoneum separates so easily that a considerable channel can be made, through which the sloughing connective tissue can afterwards discharge itself. Ordinarily, these anterior openings afford tolerably satisfactory drainage for pelvic abscesses, as the intra-abdominal pressure is sufficient to force out the pus even through an unfavorably placed opening.

In any case in which a suppurating cavity has formed in the bottom of the pelvis, which does not drain satisfactorily through an anterior opening, it is perfectly possible to reach it, and give it good drainage, by adopting the incision usually employed for excision of the rectum, and removing the coccyx and one side of the lower segment of the sacrum. Such a wound as this, which bears the name of Kraske, who uses it for the excision of the rectum, gives thorough access to the lower part of the pelvis, and would give excellent dependent drainage in case of an abscess which was burrowing in that region, and which did not sufficiently discharge itself through the more anterior openings.

In conclusion, then, it would seem that there are very few cases of rupture of the bladder, either extra- or intraperitoneal, where a laparotomy is not indicated. It is perhaps proper to formulate these remarks somewhat as follows:

Immediate operation should be performed in all cases where a rupture is known to exist.

In all intraperitoneal cases immediate laparotomy should be performed and the wound in the bladder sewed up.

In all cases where there is any doubt as to whether the rupture is extra- or intraperitoneal, immediate laparotomy should be performed.

In all extraperitoneal cases where there is any doubt as to the direction and extent of the extravasation, laparotomy should be performed at once for exploration and diagnosis, and should be followed by the operation appropriate for the drainage of the case.

There remain only the cases where the rupture is known to be extraperitoneal, and where the extravasation is known to be limited to the prevesical space, as the ones where it is safe to drain above or below, or both, without an investigation of the bladder and its neighborhood through an abdominal incision.

THE USE OF EGG MEMBRANE IN OPHTHALMIC SURGERY.

COOVER (*Ophthalmic Record*, May, 1899), stimulated thereto by reports in which egg membrane was successfully used in brain surgery and to close perforations in the tympanic membrane, employed this material in a case of symblepharon, in one of burn, in one of corneal ulcer, and after iridectomy where infection was feared.

In the case of symblepharon, due to powder burn, the upper eyelid was completely adherent to the eyeball from the caruncle to cornea, extending upward and to the median line. So firmly was the lid attached to the globe that the outward excursion was greatly impaired. After removal of all the cicatricial

tissue, two raw surfaces were left, too large to be covered by conjunctiva.

A large piece of egg membrane was cut to cover the denuded surface on the eyeball, overlapping so the edge could be tucked into a pocket made in the conjunctiva below and above to hold the membrane. This was placed in position, the lids were closed, and a compress bandage was applied. At the end of ten days the membrane was removed; the surface on the ball and lid was smooth, and there were no adhesions. The result was perfect.

In the next case, one of burn, when the granulating stage had been reached the egg membrane was placed between the raw surfaces; it was removed several times, cleansed, and replaced. At the end of ten days the surface was perfectly smooth, and there were no adhesions.

In the other case, one of sloughing ulcer of the cornea, perforation was imminent; this actually occurred while the ulcer was being curetted. Egg membrane sufficiently large to cover the anterior portion of the eye was applied. Atropine was instilled, the lids were closed, and both eyes were firmly bandaged. The third day the eye was opened and examined. The anterior chamber had reformed, the iris was free, the pupil dilated, and the ulcer was healing. The egg membrane was removed, cleansed, and replaced. At the end of the second week the ulcer was sufficiently healed to remove the membrane.

The fourth case was one of iridectomy. A piece of egg membrane was placed over the incision. The wound healed promptly.

The advantages of the egg membrane are that it is easily obtained, easily applied, and produces no pain or irritation; it is aseptic, is not acted on by secretions, and can be removed, cleansed, and replaced; it is firm and elastic, and adapts itself to the parts wherever applied.

Reviews.

A System of Medicine. By Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A. Volume VI.
New York and London: The Macmillan Company, 1899.

We have already reviewed the earlier volumes of this exceptionally valuable work, and turn with much interest to the perusal of Volume VI, which deals with the continuation of the subject of Diseases of the Circulatory System, and then follows with articles upon Diseases of the Muscles, of the Nervous System and its Coverings.

The volume opens with an article upon Right-sided Valvular Diseases by Dr. G. Newton Pitt, and one upon Angina Pectoris by Sir R. Douglas Powell. It is needless for us to state that both of these articles are exceedingly valuable from a clinical point of view, particularly that of Sir Douglas, for the writer's experience in a country where true angina is more prevalent than in the United States has given him exceptional opportunities for its study.

Dr. Roberts follows with a very good article upon Diseases of the Mediastinum and Thymus Gland, and then follow classical articles upon Thrombosis and Embolism by Professor Welch, of Johns Hopkins Hospital, and others upon Arterial Degenerations by Dr. Mott, Aneurism of the Aorta by Professor Sir W. T. Gairdner, and others upon Aneurisms of the Abdominal Arteries and Lymphatic Vessels by Dr. Rolleston.

One of the most interesting articles in the series of Diseases of the Muscles is that by Dr. Hale White upon Thomsen's Disease. Dr. Bevan Lewis writes interestingly of the General Pathology of the Nervous System, and Dr. Head, who is so well known for his researches upon the distribution of the superficial nerves, writes upon Trigeminal Neuralgia.

The article upon Diseases of the Vertebral Column, Tumors, and Compression Palsies is by Professor Horsley.

It is well pointed out in the articles upon Mediastinal Growths that while statistics indicate that carcinoma is the most frequent growth, in all probability sarcoma is the more common in this neighborhood owing to the lack of epithelium and large amount of lymphatic tissue. The incorrectness of statistics probably depends upon the fact that many years ago no clinical distinction was made between carcinoma and sarcoma.

From the first to the last page this volume teems with valuable clinical information, and the series is of distinct credit to English medicine and to its distinguished editor, Professor Allbutt.

The Diseases of the Nervous System. A Textbook for Physicians and Students. By Dr. Ludwig Hirt. Translated by August Hoch, M.D., Assisted by Frank R. Smith, A.M., M.D. With an Introduction by William Osler, M.D. Illustrated.
New York: D. Appleton & Co., 1899.

Dr. Hirt's excellent book upon Nervous Diseases is well known to readers of medical

German, and since its translation into English by American clinicans has proved itself a popular handbook in this country.

Although the title-page of the present American edition gives no intimation that it is the presentation of a later German edition than the first American edition published some years ago, an examination of its pages shows, nevertheless, that it has been subjected to revision and that the book has been brought up to the more advanced stages of present neurological knowledge. In many ways it has seemed to us that Dr. Hirt's book is one of the best upon this subject which the general practitioner can obtain, for it affords him not only the information which Professor Hirt has obtained by large clinical experience, but also refers so frequently to contemporaneous neurological literature that it thoroughly mirrors present medical knowledge, and while the views in some cases differ from those commonly held by American neurologists, it is certainly an authoritative work.

In the chapter upon epilepsy we learn with interest several facts with which we confess we were not familiar before. He tells us that certain substances taken as food or for their agreeable effects, or as medicines, are very dangerous to epileptics; among these are alcohol, mushrooms, certain spices such as Cayenne pepper and paprika, and also narcotics, particularly cocaine. "Cocaine epilepsy" has been described by Heimann, and under certain circumstances other medicines such as antipyrin may act as poisons and provoke an epileptic attack.

Hirt believes that this reference to "antipyrin epilepsy" (so-called) is a very important one because of the common employment of the drug in this and other diseases.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital. Volume II. $10.00 a year.
Philadelphia and New York: Lea Brothers & Co., 1899.

This, the second, volume of Progressive Medicine, the first volume of which we reviewed two months ago, carries out the idea which gave it origin, namely, to give personal and readable accounts of the progress made in the various departments of medicine. The present volume contains articles upon Surgery of the Abdomen, including Hernia, by Dr. William B. Coley; Gynecology, by Dr. John G. Clark; Diseases of the Blood, Diathetic and Metabolic Disorders, Diseases of the Spleen, Thyroid Gland, and Lymphatic System, by Dr. Alfred Stengel; and Ophthalmology, by Dr. Edward Jackson. The names of these authors are a guarantee of the good quality of their work. The articles of Dr. Coley and Dr. Clark are particularly interesting to surgeons and are exceedingly handsomely illustrated.

ON MATERNAL SYPHILIS, INCLUDING THE PRESENCE AND RECOGNITION OF SYPHILITIC PELVIC DISEASE IN WOMEN. By John A. Shaw-Mackenzie, M.D. (Lond.)
London: J. & A. Churchill, 1898.

The fundamental conception on which this work has been built seems to be a belief that syphilis, as a common cause of pelvic diseases in women, is usually ignored; and that the maternal origin of syphilis in the offspring, in consequence of maternal, acquired, or inherited disease, is not sufficiently recognized. In his preface the author states that the prevalence of pelvic disease, modified syphilis, and relative tertiary conditions amongst parous women in gynecological practice, as well as in other departments of medicine and surgery, leads to the impression that the estimate of immunization, as usually accepted in the mothers of syphilitic offspring, is overstated; and that complete immunity as an argument in favor of the paternal origin of syphilis in the offspring is probably fallacious.

Whether the reader does or does not agree with the views expressed by Shaw-Mackenzie in this work, he must concede that such views are forcibly expressed and amply supported by clinical observation. The book is worthy of careful study, and it is especially valuable in that it tends to counteract a certain mental inertia which leads the profession to accept without thought or questioning the text-book teaching of the day.

The therapy advised does not differ essentially from that in common use.

ON FRACTURES AND DISLOCATIONS. By Professor Dr. H. Helferich, of Griefswald. Illustrated with 68 Plates and 126 Figures in the Text, drawn by B. Kelitz. Translated from the Third Edition by J. Hutchinson, Jr., F.R.C.S.
New York: William Wood & Company, 1899.

This admirable work, well worthy of translation, cannot be too warmly commended. It is copiously illustrated by ordinary cuts, colored plates, and excellent radiographs. In itself it is almost a practical treatise upon the subject; and yet the script which it con-

tains would, if condensed, occupy probably not more than 200 pages.

The remarks upon the prognosis of fractures are peculiarly apt. The author states that a patient with a fracture may be said to be cured only when he is again able to work. Out of 121 cases of fracture of the shaft of the femur, thirty-four per cent were completely cured in this sense, while sixty-six per cent remained permanently damaged. The average duration of time before a cure was obtained was 13½ months.

Plaster-of-Paris bandages applied around a limb recently fractured are regarded as dangerous. When splints are employed, these may be of bent metal, and the molded plaster-of-Paris ones are strongly recommended.

This work is simply invaluable.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., and F. F. Burghard. M.D., M.S. (Lond.), F.R.C.S. In Six Volumes. Volume I.

Philadelphia and New York: Lea Brothers & Co., 1899.

This work, most appropriately dedicated to Lord Lister, LL.D., P.R.S., judging from its first volume, is designed as a text-book which shall thoroughly cover the very large subject of Surgical Therapeutics. There is no attempt made to give a summary of the various methods of treatment, but rather the authors endeavor to state exactly and in detail what they themselves would do under given circumstances. Exceptional diseases are not mentioned, space and time being devoted to the conditions with which the surgeon is most commonly called upon to deal.

The first volume is devoted to the therapeutics of inflammation. There is a chapter upon anesthetics; five upon wounds; one upon cicatrices; one upon syphilis; one upon chancroid; one upon tuberculosis; and one upon tumors.

As would naturally be expected, the sections upon inflammation are most thorough. The chapter upon anesthetics, by Silk, is also an admirable one, though the confidence he places in chloroform and the freedom with which he uses it will not be acceptable to the majority of American surgeons. In the section which deals with disinfection of the skin, and particularly that of the hands, it is to be noted that Cheyne and his colleague still trust in the antiseptic powers of carbolic acid. They first scrub with turpentine, then with soap and 1-to-20 carbolic acid solution; or better, a 1-to-20 solution of carbolic acid in water, containing 1 part in 500 of corrosive sublimate. The part is then covered with gauze soaked in 1-to-20 carbolic acid solution.

Carbolic acid is an unreliable disinfectant and is extremely irritating to the skin. Other and more modern methods are preferred by the great majority of surgeons.

It is also to be regretted that a better method of purifying instruments is not given than that afforded by thoroughly washing and cleansing them by means of a nail-brush immersed in a 1-to-20 carbolic acid solution; also the method of sterilizing instruments by immersing them in a 1-to-20 carbolic acid solution for half an hour or longer before beginning the operation may be regarded as thoroughly antiquated. One of the minor disadvantages of this method is that it ruins the instruments.

Douching of the wound with a 1-to-3000 sublimate solution is advised. This is certainly in opposition to the practice of the day.

Finally, Lister's gauze, impregnated with a double cyanide of mercury and zinc, is recommended as the most universally applicable and most satisfactory dressing that has yet been introduced. It has not proven itself so to the majority of surgeons.

A confidence in methods advocated and practiced by Lord Lister, and observed and proven at every step by Cheyne, can scarcely be misplaced; yet though cyanide gauze and carbolic acid solution may be, in the hands of the writers of this book, entirely efficient, their general adoption by the profession would be a retrograde step.

This volume is practical and comprehensive. It should prove of great service to both surgeons and practitioners of medicine. The publishers' work is thoroughly commendable.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

The two medical events of the immediate future are the sixth International Otological Congress, to be held in London in the second week of August, and the meeting of the British Medical Association at Portsmouth at the end of July. For the former meeting a valuable list of communications from aurists of every nation has been announced, and in addition a general discussion on "Indications

for Opening the Mastoid in Chronic Suppurative Otitis Media" will be opened by Professor Knapp (New York), Dr. Luc (Paris), Prof. William McEwen (Glasgow), and Professor Politzer (Vienna). A special feature of the Congress will be the museum of specimens, illustrating the anatomy and pathology of the ear, nose, and nasopharynx, and of instruments, which has been organized with indefatigable energy by Mr. Arthur Cheadle, of London. At the British medical meeting, out of deference to the naval and military associations of Portsmouth, many of the general discussions will be devoted to subjects dear to naval and military practitioners, such as "The Diagnosis and Treatment of Gunshot Wounds of the Abdomen," "The Prevention and Treatment of Syphilis in the Navy and Army," and "The Medical Tests Required at Present for Admission to the Public Service." On paper the most interesting section would seem to be that devoted to diseases of children under the presidency of Mr. Edmund Owen; this section will discuss the "Treatment of Ununited Fracture in Children," "The Treatment of Pleuritic Effusions in Childhood," "The Causation and Treatment of Convulsions in Infancy," and "The Treatment of Inguinal Hernia in Infancy and Childhood."

Valsols and vasogens are being much exploited now as a base for ointments in place of paraffin. They are said to be oxygenated hydrocarbons, which have a high faculty of dissolving drugs and promoting their absorption through the skin. In combination with some drugs, such as iodoform and menthol, these bases are able to form emulsions with water. They are well spoken of in dermatological practice, but it is questionable whether they possess these properties in the high degree claimed for them.

Mr. Skinner, pharmacist to the Great Northern Hospital, recommends the following formula for allaying the itching, burning sensation of urticaria:

℞ Liquoris hamamelidis, ℥ ij;
Salis maris, ℥ ss;
Aquæ destillat., ad ℥ j.
To be applied freely.

He also speaks very highly of the following cold cream:

℞ Adipis benzoati, ℥ iv;
Ceræ albæ, ℥ ss;
Cetacei, ℈ j;
Boracis, ℈ ss;
Glycerini, ℈ i;
Aquæ cologniensis, ℥ ijss.

Jamieson publishes a therapeutic note of interest on the cause of the reappearance of pediculi vestimentorum after apparently thorough treatment of clothes. He has found that the ova remain adherent to the fine down on the surface of the body, and hatch out as soon as opportunity offers. Consequently, besides the usual thorough cleaning of the clothes, attention must be paid to the skin as well. Corrosive sublimate baths and mercurial fumigation have both been recommended. Jamieson suggests a warm carbolic bath after the skin has been thoroughly rubbed over with paraffin; or the wearing day and night next the skin of porous bags containing fragments of sulphur.

Dr. Wild showed the Manchester Therapeutical Society some preparations of artificial calamines, which he proposed to substitute for calamine in the treatment of facial skin affections. He found zinc carbonate a much more satisfactory basis than zinc oxide. Jeweler's rouge (Fe_2O_3), which is the coloring matter of real calamine, gave very good results. Armenian bole gave more yellow-tinted preparations, which were frequently suitable. He believed the artificial calamine was preferable to the natural, as precipitated zinc carbonate is finer and softer than the best elutriated calamine.

Dr. Williamson made an instructive communication to the Manchester Therapeutical Society on the palliative treatment of paralysis agitans. He was of opinion that by appropriate remedies much might be done to relieve the persistent trembling. Sound sleep was a first essential, as beyond doubt sleeplessness served to aggravate all the symptoms. To this end he recommended sulphonal or hot whiskey and water at bedtime. Alcohol and even strong tea or coffee during the day appeared to increase the trembling. Writing or needlework, or even holding the arms above the head, was of some temporary benefit; so also the warm bath. Systematic open-air treatment by whatever means most convenient to the particular sufferer should be rigidly insisted upon. Dr. Williamson had tried strychnine, arsenic, potassium iodide, potassium bromide, calabar bean, gelsemium, and cannabin tannate with no benefit. Morphine hypodermically is beyond doubt of great value, but should of course be avoided in a disease of such chronicity; but morphine or duboisine by the mouth seemed comparatively ineffectual. Hyoscine, however, appeared to be the drug of greatest value. Dr. Williamson gave as much as $\frac{1}{100}$ of a grain of hyoscine hydrobromate at a dose; he had

started with $\frac{1}{200}$–$\frac{1}{150}$ grain in pill form, but had found such small doses useless. He now gave the larger dose in solution—two teaspoonfuls of a mixture of one-fourth grain of hyoscine hydrobromate in six ounces of chloroform-water. The dose could be increased to $\frac{1}{75}$ grain without fear. Dr. Leech was of opinion that so large a dose as $\frac{1}{75}$ of a grain might be given by the mouth, but hypodermically would almost certainly be attended by alarming symptoms. Hyoscine seemed to relieve the muscular restlessness and tremor. Tolerance for the drug is usually established in the course of a few weeks, when it is better temporarily to abate the remedy, and resume it at a later period.

To the sufferers from hay-fever at this time of the year it will be welcome news that Dr. Burton claims to abort coryza by the local use of a solution of tincture of belladonna in water—a drachm or a drachm and a half in an ounce of water. He gives the following directions for use: The nose having been well cleared out and a Wallar's irrigator containing about a dessertspoonful of the solution applied to one nostril, close the other nostril and the mouth, and while gradually raising the distal end of the irrigator, make a long inspiration until the air, in bubbling through the solution, carries with it a coarsish spray. Afterwards spray the other nostril in the same way, and then, having well cleared out both nostrils, repeat the process. He vouches for the cessation of the coryza, if the treatment is commenced on the first or second day of the attack, but in cases of longer standing the application may require repetition once or twice in addition. In cases of long standing in which the nasal mucosa is thickly coated with a tenacious mucus, this should be previously removed by warm alkaline irrigations, so that the belladonna solution may act directly on the mucous membrane.

Sir Willoughby Wade makes some practical suggestions on the treatment of abdominal palpitations. This symptom is commonly associated with functional disorder of some viscus or other, and is commonly regarded as an effect of it; hence treatment is directed to the supposed *causa causans* with the usual unsuccessful results. Sir Willoughby Wade opines that we have to deal with a condition of high tension in a limited arterial area, to wit, in the abdominal aorta and the adjacent iliac arteries. He supports his contention by the observation that in these cases there is usually a low tension radial pulse, the blood being concentrated on a splanchnic arterial area to the privation of a somatic. With a view to restoring circulatory equilibrium, he recommends in these cases a small—say $\frac{1}{100}$ grain—dose of nitroglycerin, when an attack of palpitation sets in. He himself has employed the remedy with constant success, and has noticed also that with relief of the abdominal palpitation the radial pulse becomes more full and forcible. He considers that this is the essential principle involved in the Schott treatment, that relief of one circulatory area is best promoted by determination of the blood to another; the baths attract the blood to the skin, and the resisted movements to the muscles, and by emptying the splanchnic vessels the stasis in them is relieved.

At the last meeting of the British Balneological and Climatological Society, Dr. Shirley Jones spoke enthusiastically of the good results obtained in cases of neuritis and neuralgia by treatment with Droitwich brine baths. The general line of treatment for acute cases consists in the use of a hot reclining bath without massage or electricity, but with as complete rest as possible; in cases of the lower limb rest in the recumbent position; for the upper limb rest in a sling; and in uncomplicated cases no drugs at all. Compresses of hot brine water are used for relief of pain. As the acute stage passes off the douche along the course of the nerve is employed. The temperature of the douche varies usually between 80° and 115° F., according to the patient, but in some cases as low a temperature as 65° has been found beneficial. These low temperatures are most suited to cases in which there is muscular atrophy; for these cases the swimming bath is particularly useful, not only on account of its general tonic effect, but also because on account of its buoyancy a limb may be freely exercised with a minimum of exertion.

The vacant chair of Physiology at Edinburgh has now been filled by the appointment of Professor Schafer. No one can doubt that the Curators have selected the right man from among a very strong field of competitors. For research Professor Schafer has of course a world-wide reputation; his experience of teaching ranges over some sixteen years that he has held the post of Jodrell Professor of Physiology in University College, London. At the present moment there are vacant several important professorships and lectureships in physiology in this country; and, moreover, Schafer's departure to Edinburgh will almost

certainly involve a shuffling of the cards within the metropolitan area.

The committee of the Liverpool School of Tropical Diseases has decided to send an expedition to West Africa to investigate the causes of malaria with a view to extirpating the disease. Major Ross is to be at the head of the expedition, which will reach Sierra Leone in August. He hopes to establish his theory that malaria is caused by the bite of a certain species of mosquito, and to devise some method of exterminating the mosquito.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

It may interest the readers of the Therapeutic Gazette to read a few lines concerning the Boucicaut Hospital, the newest one in Paris, and which represents the latest applications of architecture to the care of the sick. This hospital is due to the generosity of Madame Boucicaut, the wife of the founder of the Bon Marché, and was opened on December 1, 1897, by President Faure. Ten years before this date Monsieur Boucicaut died, leaving by will two millions of francs to the Administration of the Assistance Publique. If after settling all minor endowments the sum of eight millions of francs was left over and above, this sum was to be used to found a hospital in Paris. Certain conditions were specified, of which I shall say a few words as I proceed. A certain number of beds were to be reserved for the employees of the Bon Marché; there should no longer exist that rigorous distinction of the hospital into two parts, one for men and another for women; and instead of having an equal number of beds for both sexes, that for men should be in excess, as is justified by statistics.

The plans offered in a competition differed greatly from what is found in America. Fifteen jurors to decide on the plans were chosen—five from the Municipal Council of Paris, two from the Supervising Committee of the Public Assistance, a physician and a surgeon of the hospitals, one of the executors of the will, three architects chosen by the competitors, the administrative director of the Paris works, and the general director of the Public Assistance. One point will strike my readers: it is the small number of medical men indicated, a fact which is due, first, to their rarely remaining any great length of time in one hospital, and secondly to their rôle in a hospital being a purely medical one, no administrative authority being given them. In former times such a condition of affairs did not exist—for instance, Dupuytren was at one time director of the Hôtel Dieu.

The work on the Boucicaut Hospital was begun in October, 1894, and finished in November, 1897. This building, or rather group of buildings, is situated in the Javel quarter, on the south side of the Seine, in a very salubrious part of the city. By personal observation I have been able to note the freshness and purity of the air compared to that found in the center of the city. The fortifications are only 800 yards distant, and this part of the city is but sparsely populated compared with the rest. Though the hospital contains only 180 beds approximately, it covers an area of 30,000 square meters, of which 7500 only are used for the buildings. The various wards are disposed in parallel lines, north and south, so that they receive the sun on one side in the morning and on the other in the afternoon. Brick, stone, and iron are the materials used, and the roof is tiled. An interesting point is the construction of the walls of the pavilion; they are double, and squares of cork are used in their construction, which serve to prevent any untoward effect from rapid variations in the external temperature.

On entering the building from the Rue de la Convention, a wide street paved with wood, one comes into a large hall, from which branch off right and left the services of medicine and surgery. If we go to the right we pass through a long tiled passageway leading to the consultation rooms, and ending at a small pavilion with four beds, intended for doubtful cases. The patient on entering is shown into a large waiting-room, and if he is admitted he is given a bath, a new suit of clothes, his old being sent down by special openings into the underground passages, whence they are taken to the disinfecting department. If the case is doubtful, it is kept in the isolated pavilion; if not, it is taken either to the general medical ward A or to the consumptive ward B. The same course is followed out in the surgical division, there being two distinct wards—one for septic cases and the other for aseptic cases.

Leaving behind us the long building fronting on the street, and entering the large central court, we find that the space before us resembles a huge garden, with four long nar-

row buildings running parallel to one another and of exactly the same form. I have already mentioned the complete separation that exists between these four buildings—ward B being given over to consumptives, wards C and D having each their own operating-rooms, with the various instruments and articles attached thereto. On entering these wards, one is impressed by the beautiful cleanliness, due, first, to the lack of corners (everything is rounded off, and the roof is ogival), to the great quantity of windows (which are arranged in three sets, with various means of opening them, according to their height from the ground), and to the beautiful color used for painting the walls—a sort of rose hue. The floor is made of large white tiles, and here and there a line of darker hue. The ceiling is at a height of six meters, and each patient's supply of air is about eighty to ninety meters.

The ventilation is assured by orifices existing below the windows, and by apertures in the ceiling opening into small aerating towers. All these wards occupy only one story.

The heating apparatus is placed in front of each window, and heat is supplied by steam. The air, on coming through the ventilators, is therefore heated immediately.

At night one or two blue electric lamps furnish the light necessary for watching the patients.

The steam-heating apparatus and the electric plant are placed in the same building and furnished with steam by the same generator, which moreover furnishes the heat to the kitchen, a fine large room, with a magnificent ventilator, and where one is impressed by the use of enormous boilers for cooking. These are hollow, and it is by having the steam come up into them that a sufficient degree of heat is produced.

At the end of each ward there is a sort of veranda with glass sides of various colors, containing shrubs, where the convalescent patients are allowed to remain during the day.

The beds are made on the Herbet system, and can be taken to pieces completely; the chairs are iron, with wooden slabs; the tables are also of iron, with two porcelain slabs. The furniture of the wards is built in accordance with modern ideas, and is made mostly of iron and glass.

The spittoons are also very well arranged, being placed about a yard above the level of the soil, and containing a solution of carbolic acid. Every morning they are carried off on special carriages arranged for this service and completely sterilized.

The cleaning of the wards is done with water and soap. In every ward there is a small opening that leads off from the floor into a pipe, and in this manner the result of the cleaning can be easily removed.

Dr. Letulle, who has charge of the medical service, has tried to transform the tuberculous ward into a species of sanitarium. He has had a tent constructed where the tuberculous patients can lie out during the hot summer months, and a certain number of wicker chairs with covered tops (bath chairs) are used in the same way.

The surgical service, which is under control of Dr. Gérard Marchand, is very well organized, but there are some minor points which have been neglected, such as a special room for narcosis. The operating amphitheater is too small for the number of assistants, who are obliged to crowd around the operator. The service which is perhaps the best, though presenting some minor defects, is the maternity. This part of the establishment, which is under the direction of Dr. Doléris, is quite separate from the rest of the buildings. (Dr. Doléris, the head of the maternity division, visited the United States some years ago. For a number of years, first in a private clinic of his own, and afterwards in a service at the Pitié Hospital he gave lessons in gynecology with practical exercises. These were much frequented by foreigners, to whom Dr. Doléris was invariably courteous. Dr. Doléris's works are too well known by all gynecologists to need mentioning.) There are two buildings in this part of the hospital—a smaller one adjoining the street, destined for the infected cases, with a kitchen, two rooms for nurses, and one for a midwife; on the first floor are two rooms with two beds, a small operating-room, a bath-room, and water-closet.

The Maternity itself is a two-story building. On the first floor one finds a waiting-room, a consulting-room with bath-room attached, the reception-room of the physician, a laboratory, and a museum for pathological specimens. In another wing are two rooms for the midwives, a dining-room, a bath-room, a linen closet, a dining-room for the patients, and a ward containing six beds for patients presenting something abnormal. On the first floor there is the "salle de travail," or parturition ward, with four beds; this is one of the finest wards in the establishment. Adjoining is a bath-room, and close by a

large operating-room for major operations. The beds in the "salle de travail" are so arranged that the end of the bed can be thrown back and the patient brought to the foot of the bed for a case of forceps or version. The maternity ward is large and spacious and contains fourteen beds. Next to it are two rooms for the wet-nurses, who can watch through the windows all that takes place in the ward. There is adjoining these rooms a room in which it is proposed to wash and weigh the infants every afternoon.

I have so far not spoken of the system of underground passages, which is one of the most striking features of the establishment. Underneath the pavilions there is a long tunnel in the form of a horseshoe, lighted from above by small funnels, and giving off lateral tunnels for the different wards. The whole hospital is therefore connected by this underground system of passages, which exists also in Berlin at the Urbain Hospital. This tunnel serves for the carrying of food on small tramways, and the placing of the water-pipes, gas, and electricity. All the soiled linen is carried off in like manner.

Such is a short description of this new hospital, which presents of course a certain number of defects, but which is after all much in advance of the other Paris hospitals.

QUININE IN MALARIAL HEMATURIA.

To the Editor of THE THERAPEUTIC GAZETTE.

SIR: I have been much interested during the past year in a discussion going on among members of the medical profession of the South on the administration of quinine in malaria in its various forms and complications. Physicians of equal eminence are widely at variance. I am constrained to believe that each line of treatment possesses its quota of merit. My experience has long taught me that in the more malignant forms we at times have to call to our assistance all the resources of the art.

The name "malarial hematuria" I conceive to be a misnomer, calculated to mislead the young and inexperienced physician in its treatment. In speculating on its etiology and pathology (I use "speculating" advisedly), I grope along the well worn paths of experience with no data of a scientific nature to guide or direct me. I concede malaria to be the primary cause, but after the initiatory chill, the characteristic urinary discharges, the intensely icteroid condition following, we then have before us manifested in all its intensity the phenomena of biliary poisoning. Cholesterine being the poisonous principle of the bile (Flint's Physiology), we have cholesterinic hematuria, or hemoglobinuria, and as quinine produces cholesterine in the blood (Headland on Actions of Medicines) its administration is clearly contraindicated. The disease in my experience is seldom if ever characterized by periodicity; rigors of varying intensity follow each other in rapid succession, due to the toxins circulating in the blood, also to the altered chemical relationship existing between the blood, the nervous system, and other organs and tissues of the body; the functions of the liver being entirely suspended, a suppression of its action as a destroyer of animal toxins intensifies the peril of the patient. The gall bladder is distended to its utmost capacity by concentrated bile; the ductus communis is occluded by thick inspissated mucus.

The issue of the case depends absolutely upon our ability to keep the kidneys acting until we can arouse the portal system. I will not try in this communication to go into the details of its treatment. Quinine is not admissible at any stage of the disease, nor is it indicated, as it is productive of the disease, its administration often converting a mild case into one of malignancy and hopelessness.

H. C. STINSON, M.D.

DERMOTT, ARK.

SNAKE-BITE AS A CURE FOR PULMONARY PHTHISIS.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: It may be of interest to you and some of your readers to hear of a case that fell to my lot to see and treat, especially the result obtained. The case was a woman thirty-five years old, who for three years has had all the typical symptoms of pulmonary tuberculosis; these I need not mention, but suffice it to say they were all present. The patient was bitten in the face, on the malar bone, by a copperhead snake. I used cardiac stimulants and permanganate of potassium by injection (subcutaneously). The patient then weighed 92 pounds and was emaciated and weak. From the date of bite her weight increased to 138 pounds, the hemorrhages ceased, and to make a long story short she is now almost well, the phonendoscope showing only a little trouble.

PAGE A. GIBBONS.

MORGANTOWN, WEST VIRGINIA.